TECHNICAL SPECIFICATIONS

WASHINGTON STATE
DEPARTMENT OF TRANSPORTATION
FERRIES DIVISION

M.V. TACOMA PRESERVATION
CONTRACT NO. 00-8725

(Single Source)

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TECHNICAL SPECIFICATIONS

For the following Technical Specifications, the Contractor is to provide all labor, material and equipment to accomplish each and every Bid Item unless otherwise specified.

The Specification Item sub-titles in brackets are for WSF internal use only, for Life Cycle Cost modeling. Bidders should ignore such bracketed sub-titles.

Contractor shall provide Material Safety Data Sheets (MSDS) of the Paint to be used on the Vessel to WSF Project Engineer prior to any Painting on the Vessel. No Painting of the Vessel shall be started until MSDS are provided.

1. DRYDOCK VESSEL
{MAINTENANCE}

M.V. Tacoma Vessel Particulars;
Length: 460'2", Beam: 90'0", Draft: 17'3", Displacement: 6,184 LT.

A. Drydock Vessel for cleaning, painting, inspections, the Work specified herein and any necessary repairs.

B. Block spacing shall be at twelve foot (12') centers. Within twenty-four (24) hours of docking, provide three (3) copies of the block position drawing to the WSF Inspector indicating the block positions used.

C. Vessel shall be blocked to expose the previous docking block positions. **Attachment No. 5, Previous Block Position**, showing previous blocking position is provided.

1. Confirm the previous dock spots are exposed prior to landing the Vessel on the keel blocks.

NOTE:

Set Blocks at a height that will allow Propeller rotation. **Propeller blades extend below the base line.**

D. Berth the Vessel dockside at the completion of drydock related Work.

E. Berth the Vessel for cleaning, painting, inspections, and other Work specified herein after drydock related Work is complete.

F. When the terms forward, aft, port, or starboard are used, the No. 1 End is to be considered the bow.

2. TEMPORARY SERVICE
{MAINTENANCE}

A. Install one (1) telephone on board in a location designated by the Vessel Staff Chief Engineer. The telephone is to have one (1) outside line with toll-free access to Seattle and vicinity and, if different, one (1) line for local numbers. The telephone shall have touch-tone service if available from the Contractor's telephone system.

B. Provide one (1) high-speed internet connection onboard the Vessel in a location designated by the Vessel Staff Chief Engineer. The Contractor may provide a wireless internet connection in lieu of a hard wire connection to the Vessel providing that it will provide an unobstructed and constant high-speed wireless internet connection.

C. Provide and/or maintain electricity, potable water, sewage removal, safe lighted gangway, and trash removal services while Vessel is in the Contractor's facility.

D. Provide safety and security for the entire Vessel throughout this Contract period until such time as the WSF Representative has accepted re-delivery of the Vessel. Every reasonable precaution shall be taken to protect the Vessel from the hazards of fire, flooding, pilferage, malicious damage, and other events including cataclysmic phenomena of nature.

E. Provide and maintain comprehensive and effective fire prevention and fire detection, and fire fighting programs and systems sufficient to ensure the safety and integrity of the Vessel. Provide personnel trained in shipboard fire fighting techniques and also trained to cooperate with and assist local fire fighting organizations. Provide sufficient shore fire hoses to ensure an adequate supply of fire fighting water, at sufficient pressure, and maintain an adequate number of tested fire-hoses aboard the Vessel to effectively fight fires at any location in the Vessel.

F. Provide and maintain portable fire extinguishers in sufficient quantity, and of the appropriate type, to combat local fires of any class. Provide sufficient fire watches, including roving watches as may be required, to ensure that fires that may be inadvertently started by welding sparks or heat, electrical malfunction, or spontaneous combustion are detected, reported and promptly extinguished.

G. Clean and gas free all spaces and tanks associated with the Work, as necessary, and obtain a Marine Chemist certificate for "SAFE FOR WORKERS", and "SAFE FOR HOT WORK". Maintain the certificates during the course of the Work for all Work Items of this Contract.

H. Provide portable toilet facilities with hand washing facilities in the vicinity of the Vessel gang way for the sole use of the Vessel crew, with weekly scheduled cleaning and maintenance anytime the sanitary water, potable water and or sewage systems are disabled.

I. Provide a certified non-contaminated bottle water dispenser with hot and cold taps in a location designated by the Vessel Staff Chief Engineer. Provide sealed bottles of water to the location of the dispenser; estimate ten (10) gallons per day.

J. At completion of engine room Work, strip, clean and apply two (2) coats of wax to the EOS, Engineer's Day Room, Engineer's Wash Room, Engineer's Store Room and Vessel Staff Chief Engineer's office deck in accordance with the flooring manufacturers' recommendations.

K. Provide twelve (12) crane lifts to support WSF, including all necessary chasing and rigging support, and forklift moves, to lift palletized material on and off of the Vessel. All lifts are to be pre-authorized by WSF Inspectors. The price will be adjusted upwards or downwards, based on the crane lift Unit Price.

NOTE:

For bidding purposes, assume the crane lifts to be no greater than 1000-lbs., 4' x 4' x 4' to the Sun deck. The price is to be adjusted at the end of the Contract per the crane lift Unit Price.

L. Provide tug service to tow the M.V. Tacoma from WSF Eagle Harbor Facility to Contractor's Facility fairway adjacent to the Contractor's drydock. Arrangements are to be made at the Contract kick off meeting. The price will be adjusted based on the Tow Vessel between WSF Eagle Harbor Facility and Contractor's Facility Unit Price.

M. Provide tug service to tow the M.V. Tacoma from Contractor's Facility fairway at completion of drydocking to the WSF Eagle Harbor Facility. Arrangements are to be made at the final progress meeting. The price will be adjusted based on the Tow Vessel between WSF Eagle Harbor Facility and Contractor's Facility Unit Price.

N. Provide temporary lighting and ventilation throughout the Vessel during the time that Vessel electrical systems will be inoperable in the course of this Work. Temporary lighting levels shall be at least equal to those lighting levels provided by the installed lighting. Temporary connections directly into the lighting transformers are authorized. Provide temporary connections to main motor and propulsion generator heaters, No. 1 and 2 Ends davit control heaters, one (1) potable water pump and one (1) ships service boiler to maintain heat on the Vessel if necessary to maintain operation of these systems. Show all temporary connections to the Vessel Staff Chief and the WSF Inspector prior to energizing.

O. Provide a certified non-contaminated bottle water dispenser with hot and cold taps in a location designated by the Vessel Staff Chief Engineer. Provide sealed bottles of water to the location of the dispenser; estimate five (5) gallons per day.

P. The Contractor shall provide and maintain rigid control of welding and grounding for the protection of the hull, hull systems, and appendages during the entire time the Vessel is in the custody of the Contractor. The Vessel shall be properly grounded throughout the period of the Contract except when the Vessel is underway for Trials. There shall be no welding or air arcing undertaken aboard the Vessel until a hull corrosion protection system has been installed to the satisfaction of the WSF Representative and hull ground cables are installed. Provide and maintain zinc anodes for hull corrosion protection.

Q. Hull potential readings shall be taken twice daily until satisfactory potentials have been obtained and at least weekly thereafter. The Contractor shall maintain a written log that indicates the station at which each reading was taken, the amplitude and polarity of the reading, the time and date, and the name of the individual making the readings. This record shall be made available to the WSF Representative upon request.

R. Provide an exact copy of the hull potential log, to date, to the WSF Representative in conjunction with progress billings. Progress payments WILL NOT be made until the required hull potential logs have been received by the WSF Representative.

S. The total cross-sectional area of hull ground wire shall be one million circular mils minimum per 1,000 amperes per 100 feet.

NOTE:

Hull potential shall be maintained in the range of +.75 to .9 V as measured on a certified U.S. Filter Electro Catalytic corrosion potential meter, silver-silver chloridem Model 33419-3. This shall be the only meter used to measure hull potential.

T. At completion of topside Work, have the carpets in the crew's quarters and pilot houses professionally cleaned. The Contractor shall present the cleaned areas to the WSF Inspector and Vessel Staff Master for approval of cleanliness.

NOTE:

In addition to the Temporary Service Requirements, there are additional WSF Personnel Facility Requirements in the Special Provisions portion of this Contract.

U. Coordinate the following Preliminary Vessel Inspections with WSF personnel prior to the beginning of coating preparations. Some of these checks may be able to be coordinated and completed prior to Vessel arrival at the Contractor's facilities. At the conclusion of this survey, the Contractor shall produce a Vessel Inspection Survey Report.

1. Confirm that all pilot house electronics and equipment are in working order using **WSF Pilot House Check-List** dated 12/13. Perform these tests with the Vessel Staff Captain and WSF Inspectors.

2. Check that all doors throughout the Vessel are in good working order, close completely, and do not drag, catch, or bind. Check all door hardware for completeness. Document the inspection using **IFB Vol. II, WSF DWG A74-004-02, Jumbo Mark II Class Ferry, Door Schedule and Key Plan**, for reference.

3. Inspect the Vessel's Public Address and General Alarm Speaker system with the WSF Senior Telecommunications Specialist, Vessel Staff Captain, and WSF Inspectors. Document the results using **IFB Vol. III DWGS, WSF DWG A62-095-01, Jumbo Mark II Class Ferry, Public Address System Circuit 1 MC** and **WSF DWG A62-095-02, Jumbo Mark II Class Ferry, General Alarm Sys. Circuit "G"**.

4. Inspect the Vessel's security and camera system with the WSF IT Infrastructure Support Technicians, Vessel Staff Master, and WSF Inspectors. Documentation for the inspection will be provided by WSF.

5. Operate the rescue boat davits through their working range. Catalog and store all rescue boat lines and equipment in a secure dry area.

   a. Submit a report of the existing sea painters and sheave arrangements and conditions.

6. Inspect the vehicle deck sprinkler system nozzles. Document the inspection using **IFB Vol. III, Jumbo Mark II Class Ferry, WSF DWG A52 -058-02, Sprinkler System Piping Diagram** for reference.

7. Survey and document the existing external fluorescent light fixtures throughout the Vessel.

8. Survey and document the external fire extinguishers throughout the Vessel using **IFB Vol. III, WSF DWG 8111-694-100-01, MV Tacoma, Jumbo Mark II Class Ferry, Fire Control Plan**.

V. At completion of coatings renewals, re-inspect the ship's systems and equipment documented in Preliminary Vessel Inspection Survey Items 1-8, to ensure all of the ship's systems and equipment are in the same working order as upon arrival. Complete the delivery inspections **no later** than two (2) days prior to departure. Submit a signed written report of the survey inspections to the WSF Vessel Project Engineer.

W. During all blasting and coating operations install Contractor furnished temporary supply ventilation that will maintain a positive atmosphere of 110% over the designed CFM in the Engineer's Operating Station and all of the Engine Rooms and Machinery Spaces. Maintain clean MERV 6 air filters over all of the supply air during all blasting and coating operations. Maintain a positive atmosphere in the machinery spaces during all preparation and coating operations. **IFB Vol. III, WSF DWG A74-012-02, Jumbo Mark II Class Ferry, Heating, Ventilation & Air Conditioning System Diagram,** is provided for guidance. Install manometers to measure and adjust the positive ventilation as required to maintain a positive atmosphere.

NOTE:

All Work accomplished under this Contract, unless specifically specified differently in a Work Item in these Technical Specifications, shall be in accordance with the requirements of IFB Volume II, Supplemental Specifications and Contract Drawings, Supplemental Specifications, WSF 001 – WSF 004, as follows:

WASHINGTON STATE
DEPARTMENT OF TRANSPORTATION
FERRIES DIVISION

SUPPLEMENTAL SPECIFICATIONS

WSF 001, MARINE COATING AND COLOR SCHEME SPECIFICATIONS

Area Preparation, Surface Preparation, Grit Blasting, Paint Coatings, and Inspection for Vessel's hull, curtain plates, casing and super structure shall be in accordance with WSF 001, Marine Coating and Color Scheme Specifications, unless otherwise specified in the following Technical Specifications. Revision 01/07.

WSF 002, ELECTRICAL INSTALLATION SPECIFICATIONS

Details of all electrical installations shall be in accordance with WSF 002, Electrical Installation Specifications, unless otherwise specified in the following Technical Specifications. Revision 01/07.

WSF 003, GENERAL CONSTRUCTION REQUIREMENTS

Details of all structural and mechanical installations shall be in accordance with WSF 003, General Construction Requirements, unless otherwise specified in the following Technical Specifications. Revision 04/07.

WSF 004, REMOVAL CATEGORIES AND REQUIREMENTS

Details of all removal categories shall be in accordance with WSF 004, Removal Categories and Requirements, unless otherwise specified in the following Technical Specifications. Revision 04/07.

3. SEA VALVE INSPECTION

A. Open the below listed sea valves, clean and blue for inspection.

For the M.V. Tacoma:

List	LOCATION	SERVICE	SIZE	TODD VALVE NO.
1	No. 1 End	Sea Chest (Vents)	2" gate	V2-111-05
2	fr 23	Sea Chest (Vents)	2" gate	V2-111-05A
3		Sea Chest (Motor Op)	16" gate	V16-583-117
4	fr 43	Elec. Machy SW Cooling	6" gate	V6- 583-20
5	fr 32	Firemain overboard	4" stop check	V4-581-53
6	fr 24	Sprinkler strainer flushing	2" ball	V2-582-03
7	fr 24	Main engine sw cooling	8" gate	V8-583-89
8	fr 30	EOS cooling SW ovbd	1 1/4" gate	V1-1/4-583-93
9	fr 11	Bilge sys overboard	4" remote stop check	V4-113-65
10	No.2 End	Sea Chest (Vents)	2" gate	V2-111-06
11	fr 23	Sea Chest (Vents)	2" gate	V2-111-06A
12		Sea Chest (Motor Op)	16" gate	V16-583-115
13	fr 20	Firemain overboard	4" gate	V4-581-58
14	fr 27	Main engine sw cooling	8" gate	V8-583-42
15	fr 42	Elec machy sw cooling	6" gate	V6-583-56

B. All valves two inches (2") and under shall be replaced with NEW Contractor furnished valves. Removed valves shall remain the property of WSF.

C. Sea valves shall be inspected by the WSF and USCG Inspectors for the following:

1. General material condition.
2. Valve disk to valve seat contact.
3. Proper mechanical operation.

D. Prior to re-installation, hydrostatically test all new and used valves to the satisfaction of the Vessel Staff Chief Engineer and the WSF and USCG Inspectors.

E. After inspection, re-assemble/install valves using new valve stem packing on non-butterfly valves, and new gaskets on all valve flange connections.

F. Upon completion of installation on the sea chest valve electric motors, test for proper operation to the satisfaction of Vessel Staff Chief Engineer and the WSF and USCG Inspectors.

G. Remove sea growth and/or rust build-up in associated connecting piping between sea chest, sea valves and strainer boxes. Sea chest, strainer box and piping shall be inspected for cleanliness by the Vessel Staff Chief Engineer and the WSF Inspector prior to closing up.

H. Provide three (3) written copies of the report of test, inspection, all repairs to existing valves and all new valves installed to the WSF Inspector.

I. Inspect for water leakage prior to launching. Any leakage will be repaired at the Contractor's expense.

4. VOID TANKS INSPECTION

{MAINTENANCE}

NOTE:

On M.V. Tacoma there are four (4) Void spaces.

A. Provide the services of a Marine Chemist to certify Voids "Safe for Workers," maintain the certificate until the inspection and any Work is complete. Provide lighting and ventilation as necessary to facilitate the WSF and USCG Inspection and any other Work to be performed in the Void spaces. There are six (6) manhole covers. Upon completion of Work in the Voids, close up the Voids using new Contractor furnished grommets, gaskets and fasteners.

5. FUEL TRANSFER, NO. 1 AND NO. 2 DEEP TANKS
{MAINTENANCE}

A. Remove and transfer the fuel oil from the Vessel to other WSF Vessels at night tie up at Bremerton terminal.

B. Remove and transport an estimated 40,000 Gallons of Diesel oil from No. 1 main deep fuel tank. Transport the fuel from the Contractor's facility to WSF's Bainbridge terminal to load onto another Vessel. All fuel shall be filtered thru a 10-micron filter, also ensure that no contaminants or pollutants are in the transferred fuel oil. Once the tank is empty coordinate with the **USCG Fuel Tank Inspection** Item.

1. For estimating purposes, estimate 40,000 gallons per tank, the Contract will be adjusted for the actual gallons transferred.
2. Contractor shall ensure all local, State and Federal rules, laws and regulations are properly maintained for pumping, storage and transferring fuel.

C. Transfer an estimated 40,000 gallons of fuel from No. 1 main deep fuel tank to No. 2 main deep fuel tank. All fuel shall be filtered thru a 10-micron filter, also ensure that no contaminants or pollutants are in the Fuel Oil. Once the tank is empty coordinate with the **USCG Fuel Tank Inspection** Item.

1. For estimating purposes, estimate 40,000 gallons per tank, the Contract will be adjusted for the actual gallons transferred.
2. Contractor shall ensure all local, State and Federal rules, laws and regulations are properly maintained for pumping, storage and transferring fuel.

D. Transfer an estimated 20,000 gallons of fuel from No. 2 main deep fuel tank to No. 1 main deep fuel tank at completion of the USCG tank inspection. All fuel shall be filtered thru a 10-micron filter, also ensure that no contaminants or pollutants are in the fuel oil.

1. For estimating purposes, estimate 20,000 gallons per tank, the Contract will be adjusted for the actual gallons transferred.
2. Contractor shall ensure all local, State and Federal rules, laws and regulations are properly maintained for pumping, storage and transferring fuel.

E. Prior to pumping fuel into storage tank/s the WSF Inspector and Vessel Staff Chief Engineer shall inspect fuel storage container and handling equipment for cleanliness and acceptance.

NOTE:

Ensure that the Contractor's Dock Master approves all fuel transfers on Drydock.

NOTE:

Ensure that fuel transfer is scheduled/coordinated to minimize disruption with Hot Work Operations.

6. FUEL DEEP TANKS CLEANING NO. 1 AND NO. 2 FOR USCG INSPECTIONS

{MAINTENANCE}

A. Open manhole cover plates for access to the two (2) fuel deep tanks, No. 1 and No. 2, and provide ventilation and lighting as required for all USCG tank inspections.

B. Internally, clean both deep fuel tanks to ensure no contaminants, water, dirt, sludge and foreign materials remain. The Contractor will obtain a Marine Chemist certification for "SAFE FOR WORKERS" and "SAFE FOR HOT WORK". Maintain the certificate during the course of the Work.

C. Conduct an internal inspection for condition of the tanks with WSF and USCG Inspectors and the Vessel Staff Chief Engineer. Submit three (3) copies of a written report of findings to the WSF Project Engineer.

D. Upon completion of an accepted inspection by the WSF Inspector and Vessel Staff Chief Engineer, and any required Work in the tanks, the Contractor will close up the tanks with Contractor provided new gaskets and fasteners.

E. Conduct a test to ensure no leakage as approved and witnessed by WSF Inspector and Vessel Staff Chief Engineer.

F. Once the fuel tanks are complete of all associated Work, the same amount of fuel removed shall be returned to the original tank from which it was removed and filtered with 10-micron filter and ensured that no contaminants or pollutants are in the fuel oil.

7. NO. 1 AND NO. 2 FUEL OIL DAY TANKS CLEANING

A. Open manhole cover plates for access to fuel oil day tanks, No. 1 and No. 2 (3,135 gallon capacity each), and provide ventilation and lighting as required for USCG tank inspections.

B. Remove and dispose of residual fuel in the day tanks. It is estimated that 150 gallons per tank will be required to be removed. Dispose of the residual fuel in accordance with local, State and Federal rules, laws and regulations.

C. Internally, clean both day tanks to ensure no contaminants, water, dirt, sludge and foreign materials remain. The Contractor will obtain a Marine Chemist certification for "SAFE FOR WORKERS" and "SAFE FOR HOT WORK". Maintain the certificate during the course of the Work.

D. Conduct an internal inspection for condition of the tanks with WSF and USCG Inspectors and the Vessel Staff Chief Engineer. Submit three (3) copies of a written report of findings to the WSF Project Engineer.

E. Upon completion of an accepted inspection by the WSF Inspector and Vessel Staff Chief Engineer, and any required Work in the tanks, the Contractor will close up the tanks with Contractor provided new gaskets and fasteners.

8. LUBE OIL STORAGE TANK CLEANING

A. Open manhole cover plates for access to the lube oil storage tank (250 gallon capacity) in the No. 2 Engine Room.

A. Remove and dispose of residual lube oil in the storage tanks. It is estimated that two (2) gallons will be required to be removed. Dispose of the residual fuel in accordance with local, State and Federal rules, laws and regulations.

B. Internally clean the lube oil tank to ensure no contaminants, water, dirt, sludge and foreign materials remain. The Contractor will obtain a Marine Chemist certification for "SAFE FOR WORKERS" and "SAFE FOR HOT WORK". Maintain the certificate during the course of the Work.

C. Upon completion of an accepted inspection by the WSF Inspector and Vessel Staff Chief Engineer, and any required Work in the tanks, the Contractor will close up the tanks with Contractor provided new gaskets and fasteners.

D. Fill the lube oil storage tank with 250 gallons of EL3068/55 - EnviroLogic 3068 biodegradable hydraulic fluid.

9. WASTE OIL / OILY BILGE HOLDING TANK CLEANING

A. Open manhole cover plates for access to the waste oil (6,871 gallon capacity) and the oily bilge holding tank (6,871 gallon capacity) and provide ventilation and lighting as required for all USCG tank inspections.

B. Remove and dispose of residual waste oil in the holding tanks. It is estimated that 150 gallons per tank will be required to be removed. Dispose of the residual fuel in accordance with local, State and Federal rules, laws and regulations.

C. Internally, clean both day tanks to ensure no contaminants, water, dirt, sludge and foreign materials remain. The Contractor will obtain a Marine Chemist certification for "SAFE FOR WORKERS" and "SAFE FOR HOT WORK". Maintain the certificate during the course of the Work.

D. Conduct an internal inspection for condition of the tanks with WSF and USCG Inspectors and the Vessel Staff Chief Engineer. Submit three (3) copies of a written report of findings to the WSF Project Engineer.

E. Upon completion of an accepted inspection by the WSF Inspector and Vessel Staff Chief Engineer, and any required Work in the tanks, the Contractor will close up the tanks with Contractor provided new gaskets and fasteners.

10. GAUGE VESSEL STEEL

A. Perform an ultrasonic survey of the Vessel's steel plating thickness in the following locations: two (2) girth belts (including vehicle deck), one (1) at Frame No. 30 No. 1 End; and one (1) at Frame 30, No. 2 End, 100 shots per belt; hull plates in the wind and water line areas, Port and Starboard sides, full length 150 shots per side; keel plating (100 shots); vehicle deck and superstructure areas (200 shots); and in suspect areas as directed by the WSF Inspectors (100 shots). The survey shall be performed in the presence of the WSF and USCG Inspectors. Estimate a total of 900 shots will be required.

B. The readings shall be taken from the exterior of the hull when the Vessel is in drydock. The exact areas to be surveyed will be designated by the WSF and USCG Inspectors. Provide personnel lift capable of reaching all portions of the hull and the guard. The readings may be taken through the paint in areas of smooth surface if equipment is capable.

C. Provide the WSF Project Engineer with three (3) copies of the written report in a tabular form, identifying the locations of readings taken, original plate thickness, audio gauge readings taken, and percent of wastage. Attach a schematic showing the locations where the shots were taken and the thickness found.

D. In areas disturbed by this Work, remove and restore paint as necessary. Prepare surfaces to an SSPC-SP 3, Power Tool Cleaning, and apply two (2) coats of INTERNATIONAL Intershield 300, to a minimum of 5 mils (DFT) each coat for a total of 10 mils (DFT). The back sides, corners and sharp edges of all angles, rat holes, weld seams, scallops, and beams shall be hand-striped using Intershield 300.

11. RUDDER INSPECTIONS, NO. 1 AND NO. 2 ENDS

{MAINTENANCE}

A. Erect staging or provide suitable man lifting device on both sides of No. 1 and No. 2 End rudders for inspection. Remove staging upon completion of all affiliated Work.

B. Drain and pressure-test rudders for leaks in the presence of the WSF Inspector, USCG Inspectors and the Vessel Staff Chief Engineer. Test pressure shall be 42" of water with Manometer, or 1.5 PSI on acceptable calibrated pressure gage that has 1.5 PSI at mid-scale range within forty eight (48) hours of drydocking the Vessel. Accepted test will be no leaks for one (1) hour. Provide three (3) copies of a written report of findings to the WSF Inspector within twenty-four (24) hours upon completion of test/inspection.

1. Provide three square feet (3 sq. ft.) of clad weld repair. Price to be adjusted per the clad weld Unit Price.

2. Provide forty square feet (40 sq. ft.) of Arcor® or equal epoxy system for repairs of abraded areas.

C. Take and record clearances of rudder pintle and rudder stock bearings on No. 1 and No. 2 End rudders within forty-eight (48) hours of drydocking the Vessel. Provide three (3) copies of a written report of findings to the WSF Inspector within twenty-four (24) hours upon completion of test/inspection.

D. Temporarily remove the No. 2 End pintle nut cover to access plate from the rudder to provide a thorough inspection of the pintle bearing.

12. SEA CHEST AND TREATMENT TANK ANODE INSPECTION {MAINTENANCE}

A. Open the four (4) sea chest anode covers (2 per End) and the two (2) treatment tank covers for inspection by the WSF Inspector and Vessel Staff Chief Engineer using **IFB Vol. II, WSF DWG 8000-04-21-2006, Super, Jumbo & MK II Class, Seachest and Sea Water Treatment Tank Anodes Arrangement & Details** and **IFB Vol. V, Marelco System Section E, Anode Replacement Procedure** as reference.

B. Muck out the calcareous debris coating from the treatment tanks. Dispose of the waste in accordance with all applicable local, State and Federal rules, laws, and regulations.

C. Prepare the entire interior surface of the treatment tanks to an SSPC-SP 11, Power Tool Cleaning to bare steel. Apply one (1) coat of Intershield 300V Bronze, to a minimum of 6 mils (DFT). The back sides, corners and sharp edges of all angles, rat holes, weld seams, scallops, and beams shall be hand-striped using Intershield 300V. Apply one (1) coat of INTERNATIONAL Intershield 300V Aluminum, to a minimum of 6 mils (DFT).

D. Protect deck plates from damage during this Work Item.

E. Renew the existing anodes from the cover plates and sea chests, using WSF provided anodes. There are twenty-two (22) anodes, use **WSF DWG 8000-04-21-2006**, **details 17-A** and **18-A** as reference.

F. Electrically test the anodes to ensure correct anode installation using **Marelco System Section E, Anode Replacement Procedure** for guidance.

NOTE:

Disconnect electrical leads prior to removal of anodes. Reconnect electrical leads after installation of new anodes. Test electrical leads to confirm connection to anodes.

G. Close up access plates using Contractor furnished new gaskets, grommets and fasteners.

NOTE:

For purposes of bidding assume that twenty-five square feet (25 sq. ft.) of each sea chest, including cover plates (internal and external), will require SSPC-SP 3, Power Tool Cleaning. The Contract will be adjusted upward or downward to account for the actual scope authorized by the WSF Inspector.

H. Apply two (2) coats of INTERNATIONAL Intershield 300V, first coat will be Bronze, second coat will be Aluminum, to a minimum of 5 mils (DFT) each coat to all prepared surface areas repaired in this Item. Other areas of the sea chest will be accomplished in the **Hull Painting** Items.

I. Inspect for water leakage prior to launching. Any leakage will be repaired at the Contractor's expense.

13. NO. 1 AND NO. 2 ENGINE ROOM SEA CHEST PADEYE REMOVAL

A. Remove the padeyes at frame 23, on No. 1 and No. 2 engine room sea chests, as shown on **section 7-B, plan 9-B**, and on **detail 11-C** of **IFB Vol. II**, **WSF DWG 8110-705-002-10, Jumbo Mark II Class, Seachest Strainer Plate Hinges**, to allow for cofferdams installation.

B. Prepare all new and disturbed exterior areas in way of the Work in accordance with the **Grit Blasting of the Hull** and **Anti-Corrosion Coating** Item.

C. Coat all areas in accordance with the **Painting of Vessel Hull, Below the Water Line** Items.

1.

14. SEA STRAINER BOX REMOVAL, INSPECTION AND PRESERVATION {MAINTENANCE}

NOTE:

For purposes of bidding assume that 400 total square feet of coatings on the strainer boxes, including cover plates and bilges, will require SSPC-SP 3, Power Tool Cleaning. The Contract will be adjusted upward or downward to account for the actual scope authorized by the WSF Inspector.

A. Remove the sea strainer boxes to allow for coatings renewals on the exterior of strainer boxes and the bilges underneath the strainer boxes. **IFB Vol. II**, **WSF DWG A55-104-01, Unit 104 Pipe Outfit, HVAC & Piping Penetrations & Hangers**, is provided for guidance.

B. With the strainer boxes removed, make the following modifications:

1. Remove the existing cover plate stud nuts welded to the bottom of the cover bolt flange around the entire perimeter of the strainer housings.

2. Fabricate a stud mounting bar from 1¼" x 1¼" MS bar stock to fit under the strainer flange where the mounting nuts were removed. Fabricate the bar to fit all the way around the bottom perimeter of the strainer cover flange. Drill and tap the stud mounting bar to match existing cover mounting stud sizes and locations using **WSF DWG A55-104-01** for guidance. Mount the bars with 5/16" counter sunk flat head machine screws through the top of the flange in between the cover plate studs.

C. Prior to washing the engine room bilges around the strainer boxes, ensure all critical machinery is well covered, prior to the start of any Work around the strainers. Prior to washing inspect the cover up to the satisfaction of the Vessel Staff Chief Engineer and the WSF Inspector.

1. Thoroughly degrease and clean the No. 1 and No. 2 engine room bilges, underneath and around the strainers by a water wash to SSPC-SP 12/NACE 5 Low Pressure Water Cleaning (LP WC) using appropriate degreaser. The area around and underneath the strainer boxes in the engine rooms shall be thoroughly cleaned with a detergent/water power wash. Detergent-water mix must be such that a soapy residue is not left in bilges. Upon completion of cleaning, submit areas for WSF inspection.

D. Prepare areas including foundations and framing in bilges and strainer exterior as authorized by the WSF Inspector, and areas designated by the WSF Inspector to an SSPC-SP 3 Power Tool Cleaning to bare steel.

1. In areas disturbed by this Work, remove and restore paint as necessary. Prepare surfaces to an SSPC-SP 3, Power Tool Cleaning, and apply two (2) coats of INTERNATIONAL Intershield 300V, to a minimum of 6 mils (DFT) each coat for a total of 12 mils (DFT). The back sides, corners and sharp edges of all angles, rat holes, weld seams, scallops, and beams shall be hand-striped using Intershield 300V. Topcoat areas disturbed with International 990 to a minimum of 2 mils (DFT) to match surrounding areas. Hand-stripe all edges. Ventilate the space until the paint is cured with no solvent odor.

2. Provide dehumidification with a minimum of four (4) air exchanges per hour during all coating stages.

3. Take profile readings of prepared areas and provide a report to the WSF Inspector prior to coating.

E. Open the Port and Starboard sea strainer boxes for inspection of guide rails, screens and other internal fittings, the inspection to be witnessed by the WSF Inspector and the Vessel Staff Chief Engineer. Submit three (3) copies of the written report on the condition of the strainer boxes, guide rails, screens, strainer plates, and other internal fittings to the WSF Inspector.

1. Provide ten square feet (10 sq. ft.) of clad weld repair. Price to be adjusted per the clad weld Unit Price.

F. Mechanically clean the interiors, including any piping, access covers, and any paint damaged during this Work, to an SSPC-SP 3, Power Tool Cleaning. During preparation and painting, protect the valve seats and discs from damage and paint.

G. In areas disturbed by this Work, remove and restore paint as necessary. Prepare surfaces to an SSPC-SP 3, Power Tool Cleaning, and apply two (2) coats of INTERNATIONAL Intershield 300V, to a minimum of 6 mils (DFT) each coat for a total of 12 mils (DFT). The back sides, corners and sharp edges of all angles, rat holes, weld seams, scallops, and beams shall be hand-striped using Intershield 300V. Topcoat areas disturbed with International 990 to a minimum of 2 mils (DFT) to match surrounding areas.

H. Reassemble the strainer boxes upon completion of repairs using new fasteners and gaskets on the access cover plates.

I. Reinstall the strainer boxes in their original locations.

J. Prior to the removal of protective machinery covering, clean the engine rooms and voids of any dust and debris to the satisfaction of the Vessel Staff Chief Engineer and the WSF Inspector. Wipe down all major equipment after removal of protective covering.

K. All coatings will be completed and thoroughly cured on drydock.

L. Inspect for water leakage prior to launching. Any leakage will be repaired at the Contractor's expense.

15. SEA WATER TREATMENT TANK FLANGE REPAIRS {MAINTENANCE}

A. Renew the No. 1 and No. 2 treatment tank flange connections and piping using **IFB Vol. II, WSF DWG 8111-785-058-01, M/V Tacoma, Sea Water Treatment Tank Piping Mods** as reference.

B. Prior to hot-dip galvanizing, hydrostatically test the new vent piping to 75 PSI. Hold the test pressure for no less than ten (10) minutes and for any additional time as may be required to inspect the entire completed system for leaks. There shall be zero leakage or weeps, and no permanent deformation in any piping system component for a test to be acceptable.

C. DO NOT install dielectric isolation between the waster piping and the salt water treatment tank piping.

D. Repair damage caused to galvanizing during installation of the new vent piping, using GALVICON, or equal. Do not use "Brush-on" galvanizing coating on the damaged areas after appropriate surface preparation. Do not paint new pipe pieces.

E. Provide one (1) spare waster piece for each waster section onboard. Mark each waster piece with a stamped washer, tie wired to a flange with the specific location of each spare waster.

16. ELECTRIC MACHINERY SALTWATER COOLING SYSTEM MODIFICATIONS

A. Remove the existing simplex strainers serving the Electrical Machinery Cooling System and replace with WSF provided duplex strainers as detailed on **IFB Vol. II**, **WSF DWG 8113-707-058-01, M/V Puyallup, Elec Mchry SW Cooling Duplex Strainer.**

B. Remove the existing simplex strainers and piping as shown on **WSF DWG 8113-707-058-01** as **Category "D"** Items.

C. Install new duplex strainers and piping as shown on **WSF DWG 8113-707-058-01**.

D. Hydro test and flush the new piping in accordance with **WSF DWG 8113-707-058-01** in the presence of the Vessel Staff Chief Engineer, WSF Inspector and USCG Inspector.

E. Modify the deck plates in way of the new duplex strainers to allow easy access for the maintenance, switching, and cleaning of the strainer baskets. Install flush mounted heavy-duty stainless steel hinges on the accessible deck plates.

F. Prepare new and disturbed surfaces in way of this Work to an SSPC-SP 11, Power Tool Cleaning to bare steel. Apply one (1) coat of Intershield 300V Bronze, to a minimum of 6 mils (DFT). Apply one (1) coat of INTERNATIONAL Intershield 300V Aluminum, to a minimum of 6 mils (DFT). INTERNATIONAL Interthane 990, to obtain minimum 3 - 4 mils (DFT), to match existing color for the area.

17. RENEW NO. 1 AND NO. 2 ENDS PROPELLERS

{MAINTENANCE}

A. Erect and remove staging in area around No. 1 and No. 2 End propellers as required to accomplish all affiliated Work and inspection.

B. Remove existing propellers and install new WSF provided propellers and dunce caps using **IFB Vol. II DWGS**, **WSF DWG 8110-770-053-01, Jumbo Mark II Class Vessels, Five-Bladed Propeller** and **WSF DWG 8110-773-053-08, Jumbo Mark II Class, Fairwater (Dunce Cap)** as reference.

C. Remove and reinstall all interferences as necessary to complete this Work.

D. Remove the existing propellers and turn over to WSF for disposition as a **Category "A"** Item.

E. Clean the Propeller Bores and Keyways, Propeller Shaft tapers, Shaft key ways, and Keys.

F. In the presence of the WSF and USCG Inspectors and Vessel Staff Chief Engineer, on the No. 1 and No. 2 End tail shafts; conduct a nondestructive test for cracks on tail shaft taper, threads and key way. Perform run-out readings on the taper of the shaft at the small area and at the large area. Submit three (3) copies of the written report of results to the WSF Inspector, within twenty-four (24) hours of the test.

G. Install new propellers provided by WSF.

H. Blue fit the new propellers to the existing propulsion shafts to an 80% contact, to be witnessed by the WSF Inspector, USCG Inspector and the Vessel Staff Chief Engineer.

I. For estimating purposes, assume twenty (20) blue fits at each End for a total of forty (40) blue fits. The actual amount of blue fits will be adjusted at completion using the propeller blue fit Unit Price.

J. Nut hardening and final draw up is to be witnessed by the WSF Inspector, USCG Inspector and the Vessel Staff Chief Engineer.

K. Submit three (3) copies of the written report of results to the WSF Inspector, within twenty-four (24) hours of the test.

18. REMOVE AND REFURBISH THE EXISTING PROPELLERS ON NO. 1 AND NO. 2 ENDS

{MAINTENANCE-X5}

A. Erect and remove staging in the area around No. 1 and No. 2 End propellers as required to accomplish all affiliated Work and inspection.

B. Polish the No. 1 and No. 2 End propellers by power disk sanding, using 80 grit or finer abrasive. Thoroughly clean propeller hub and blades to conduct nondestructive testing.

C. Within two (2) working days of Vessel being drydocked, remove the No. 1 and No. 2 End propellers and transport to Sound Propeller for balance, pitch check, and conduct a nondestructive test for cracks in the propellers and hubs in the presence of the WSF and USCG Inspectors and Vessel Staff Chief Engineer. Submit three (3) copies of a written inspection report within twenty-four (24) hours of inspection to WSF Inspector.

D. Transport the existing refurbished No. 1 and No. 2 End propellers and dunce caps to the WSF warehouse at 6000 6th Avenue South, Seattle WA. The propellers weigh approximately 16,680-lbs each. Make arrangements to provide a heavy lift forklift to unload and move the propellers at the warehouse location.

E. Provide a report to the WSF Project Engineer with the propeller serial numbers in relation to the End that they came off of.

19. OUTER SHAFT SEAL INSPECTION AND REPLACEMENT, AND STERN TUBE INTERFACE PLATE INSTALLATION NO. 1 AND NO. 2 ENDS

{MAINTENANCE}

A. Erect, modify, and remove staging in the area around No. 1 and No. 2 outer shaft seals as required to accomplish all affiliated Work and inspections. **IFB Vol. II DWGS**, **WSF DWG 8110-773-053-05, Jumbo Mark II Class, Stern Tube Interface Plate** and **WSF DWG 8110-773-053-07, Jumbo Mark II Class, Rope Guard Retaining Ring,** are provided as reference. **WSF DWG A52-057-92, Jumbo Mark II Class Ferry, Stern Tube, Thrust and Motor Bearing Lube Oil Diagramatic Arrangement,** is provided for guidance.

B. Utilizing the staging erected above for the rudder/propeller Work, provide labor, materials, and equipment to drain the oil from the No. 1 and No. 2 End seals and stern tubes. Clean the head tank and the bilge sump tank. Flush the piping from the head tank to the bilge sump tank by using a minimum of ten (10) gallons of clean system Environmental Acceptable Lubricant (EAL) oil EnviroLogic 3068 EL3068/55 - biodegradable hydraulic fluid poured down the piping from the head tank to the bilge sump tank. Clean flushing oil from the bilge sump tank. Close up the head tank and sump tank with new Contractor furnished 316 stainless steel fasteners and gaskets. Properly dispose of oil (approximately 450 gallons, each End) in accordance with the current local, State, and Federal rules, laws and regulations.

1. Once the outer seal is removed, flush the ¾" seal circulation lube oil piping to the No. 1 and No. 2 End outer seal elements using an approved solvent to thoroughly clean out all contamination. **WSF DWG A52-057-92** is provided for guidance. The lines are identified on **WSF DWG A52-057-92, details 12-D** and **10-D** as **lines 2, 3 and 4.**

2. Use a "lance" type nozzle to thoroughly clean out the No. 1 and No. 2 End head tanks, settling tanks, used oil tanks, and drain tanks.

C. Take outer seal wear-down readings on No. 1 and No. 2 Ends, with the propeller shafts at top dead center, in the presence of the WSF Inspector and Vessel Staff Chief Engineer prior to removing seal housings (readings will be taken again when they are reinstalled). Submit three (3) copies of a written report of findings to the WSF Project Engineer or Inspector within twenty-four (24) hours of taking readings.

D. Remove the existing Eagle Seal housings from the stern tubes. Pressure-wash clean the seal housings of all growth and fouling. Crate the housings together and transport to the WSF warehouse at 6000 6th Avenue. South, Seattle WA. Inform WSF Inspectors twenty-four (24) hours in advance of transporting to arrange proper documentation. Provide an inventory list of all transported equipment.

E. While the seal assembly flanges are removed from the stern tube, install a new WSF provided stern tube interface end plate assembly using **WSF DWG 8110-773-053-05** as reference.

1. Machine the end of the stern tube using **WSF DWG 8110-773-053-05** as reference.

2. Provide the services of Everett Engineering for the machining of the stern tube.

Contact information:

Everett Engineering
Irv Tellesbo
(425) 259-3117
25 E. Marine View Drive
P.O. Box 12100
Everett, WA 98206-2100

3. Install a WSF provided stern tube interface end plate assembly using **WSF DWG 8110-773-053-05** as reference. The stern tube assembly will be provided with the rope guard retaining ring attached.

4. Once the stern tube interface end plate assembly is installed, seal weld the interface plate to the stern tube using a ¼" seam weld, all the way around the seam between the stern tube casting and the new interface plate.

F. **NOTE:**

For bidding purposes, assume ten square feet (10 sq. ft.) of epoxy application at each End for a total of twenty square feet (20 sq. ft.) of Arcor application. Upon completion of the Arcor-epoxy application, the Contract will be adjusted upward or downward to account for the actual epoxy authorized by the WSF Inspector based on the Arcor Unit Price.

G. Renew the outer shaft seals with new WSF supplied Blohm & Voss Seals. Provide the services of a certified Blohm & Voss authorized Service Representative with current Blohm & Voss Certifications to oversee the renewal of the outer seals.

1. The Certified Blohm & Voss representative is Simplex Americas LLC.

Contact Information:
Chuck Autrey
Simplex Americas LLC
20 Bartles Corner Road
Flemington NJ 08822-5717
(908)-528-1713 Mobile
Chuck@simplexamericas.com

2. Coat the new seal housings in conjunction with the **Underwater Hull Preparation and Coating** Items.

H. When the new seal housings are installed to the new stern tube interface end plates, take outer seal wear-down readings on the No. 1 and No. 2 Ends in the presence of the WSF Inspector and Vessel Staff Chief Engineer. Submit three (3) copies of a written report of findings to the WSF Project Engineer or Inspector within twenty-four hours (24) of taking readings.

I. Dial in the outboard liner after propeller installation, run out reading not to exceed .005". Take outer seal bearing wear down readings with the Vessel's gauge. The reading is to be witnessed by the Vessel Staff Chief Engineer and WSF Inspector.

J. Upon acceptance by the WSF Inspector and Vessel Staff Chief Engineer of the outer seal wear down readings, lock wire the liner and housing.

K. Fill No. 1 and No. 2 outboard seals with Contractor provided Environmental Acceptable Lubricant (EAL) oil EnviroLogic 3068 EL3068/55 - biodegradable hydraulic fluid.

L. Fill the stern tube oil system with Contractor furnished Environmental Acceptable Lubricant (EAL) oil EnviroLogic 3068 EL3068/55 - biodegradable hydraulic fluid. Inspect for leaks upon refilling of oil system and after rotating shaft (if required). No leakage will be accepted. All inspections are to be witnessed and accepted by the WSF Inspector and Vessel Staff Chief Engineer.

M. Conduct a final inspection for leaks and installation; all final inspections will be witnessed and accepted by the WSF Inspector and the Vessel Staff Chief Engineer. Submit three (3) copies of the written reports of the inspection.

N. Complete seal repairs no later than **two (2) calendar days prior** to the scheduled undocking of the Vessel.

O. Prepare any damaged coating in accordance with the **Underwater Hull Coating** Items.

20. REPLACE NO. 1 AND NO. 2 ENDS INBOARD BLOHM & VOSS SEAL [MAINTENANCE]

A. With the oil drained for the outer seal Work disassemble the inboard liners and remove the existing seal elements and replace with new Contractor furnished seal elements. Clean the head tank and the bilge sump tank. Open and clean the inboard seal lube oil head tank. Inspect the lube oil tanks in the presence of the WSF Inspector and Vessel Staff Chief Engineer. Upon approval of cleanliness close up the head tank, sump tank and seal tank with new Contractor furnished fasteners and gaskets. All oil shall be disposed of in accordance with all applicable local, State and Federal rules, laws and regulations.

1. **NOTE:**

   Prior to removal and after reinstallation of the seal elements, take inner seal bearing wear down and liner run out readings in the presence of the WSF Inspector and the Vessel Staff Chief Engineer. Submit three (3) copies of the written reports of the readings, within twenty-four (24) hours of event completion, to the WSF Inspector.

B. The existing seal elements shall be removed and the condition of the seal liners shall be reported within seventy-two (72) hours of the Vessel being drydocked.

C. Provide the services of an authorized Blohm & Voss Service Representative to install new seal elements and dial in the seal liners.

D. Dial in the liner/clamp ring. Total indicated run out not to exceed .005". Reading to be witnessed by the WSF Inspector and the Vessel Staff Chief Engineer. Submit three (3) copies of a written report of the readings to the WSF Inspector.

E. The stern tube system with be filled with Contractor furnished oil in the **Outer Seal Renewal Work** Item.

F. Inspect for leaks upon refilling of oil system and after rotating shaft. No leakage will be accepted. To be witnessed by WSF Inspector and Vessel Staff Chief Engineer.

G. Complete seal repairs no later than **two (2) calendar days prior** to the scheduled undocking of the Vessel.

H. Prepare new and disturbed surfaces in way of this Work to an SSPC-SP 11, Power Tool Cleaning to bare steel. Apply one (1) coat of Intershield 300V Bronze, to a minimum of 6 mils (DFT). Apply one (1) coat of INTERNATIONAL Intershield 300V Aluminum, to a minimum of 6 mils (DFT).

21. INSTALL FRP ROPE GUARDS NO. 1 AND NO. 2 ENDS {MAINTENANCE}

A. Install new WSF provided FRP rope guards onto the new rope guard retaining ring using **IFB Vol. II**, **WSF DWG 8110-773-053-06, Jumbo Mark II Class, Rope Guard Assembly** for reference. The rope guard-retaining ring is installed in the **Outer Shaft Seal and Stern Tube Interface Plate** Item. Staging is included in the **Propeller Inspection** Item and the **Outer Seal Inspection and Replacement** Item.

B. Prepare and paint the rope guards using the **Below The Water Line Painting System** Specifications.

22. NO. 1 AND NO. 2 ENDS SHAFT BULKHEAD SEAL INSPECTION

A. Open and inspect the No. 1 and No. 2 Ends, John Crane maneSafe Type ND size 350 (Wärtsilä Floodguard) bulkhead shaft seal, type H70300. Present the open seals to the Vessel Staff Chief Engineer and WSF Inspector.

B. Install new H70300/320/2 Diaphragm assemblies in the No. 1 and No. 2 End bulkhead seals.

C. In areas disturbed by this Work, remove and restore paint as necessary. Prepare surfaces to an SSPC-SP 3, Power Tool Cleaning, and apply two (2) coats of INTERNATIONAL Intershield 300V, to a minimum of 6 mils (DFT) each coat for a total of 12 mils (DFT). The back sides, corners and sharp edges of all angles, rat holes, weld seams, scallops, and beams shall be hand-striped using Intershield 300V. Topcoat areas disturbed with International 990 to a minimum of 2 mils (DFT) to match surrounding areas.

23. DRYDOCKING REFERENCE VIDEO (MAINTENANCE)

A. While the Vessel is on the drydock make a video on digital format on CD ROM of all external areas of the underwater hull including rudders, stern frames, skegs, propellers, tail shaft/seal areas, hull protective systems, keel coolers, sea chests, hull reference markings and all other attached appurtenances. A narrative that unambiguously identifies the location of all objects and markings videotaped shall be made as part of the video.

B. The video is to be made after all underwater Work is complete, just prior to undocking of the Vessel. The lighting shall be sufficient to insure clear definition of all objects videotaped. Background noise shall be minimized while making the narrative. Provide three (3) copies of the video.

C. Provide a copy to the WSF Project Engineer for review and approval prior to the Vessel being launched.

D. Upon approval of the video provide two (2) additional copies to the WSF Inspector. The videos shall be clearly labeled with the Vessel name, date and location at which the video was taken.

NOTE:

This video is for submission to a Regulatory Body and requires clarity and concise audibility to satisfy the requirements.

24. FRESH WATER WASH OF VESSEL HULL AND GUARD

{MAINTENANCE}

A. Within twenty-four (24) hours of drydocking Vessel, perform a Low-Pressure Water Cleaning (LP WC) at 3,000 - 3,500 PSI in accordance with SSPC-SP 12/NACE 5. The wand shall be held no more than twelve inches (12") from the surface being washed. The entire hull from the top of the guard to the keel, including flat keel, all horizontal and vertical surfaces of the guard, rudders, sea chests, sea chest strainers and propellers shall be washed. The wash shall leave no visible growth or residue after the hull dries from washing.

B. Sea chest strainer plates shall be removed for cleaning, preparation and painting and reinstalled upon completion of all related Work and inspections.

25. PREPARATION OF VESSEL HULL FOR BLASTING

{MAINTENANCE}

NOTE:

Care shall be taken to avoid damage to the "CAPAC" Anodes and Reference Cell.

A. Install protective covering on Propellers, Shaft Seals, Propeller Bearings, exposed Shafting, upper and lower Rudder Bearing areas, Pintle Pin Bushing, CAPAC Anodes and Reference Cell, all through-hull penetrations and entrance ways to protect and prevent blast material from causing damage or entering Vessel.

B. Prior to any blasting the Contractor shall conduct an inspection with the WSF Inspector and the Vessel Staff Chief Engineer.

26. BLASTING OF THE GUARD AND ANTI-CORROSION COATING {MAINTENANCE}

NOTE:

The Contractor shall have the option to UHP-WJ4, Ultrahigh-Pressure Water Jetting only **if the hull profile is taken and is within the required profile in IFB Volume II, Supplemental Specifications and Contract Drawings, Supplemental Specification, WSF 001, Marine Coating and Color Scheme Specifications** and approved by the WSF Inspector**.**

A. Blast the entire guard to an SSPC-SP 6, Commercial Blast Cleaning. Surface profile will be 2 to 4 mils per **WSF 001**.

B. Apply one (1) coat of INTERNATIONAL Intershield 300V Bronze, to a minimum of 6 mils (DFT) to all prepared surface areas repaired in this Work Item.

C. Apply one (1) coat of INTERNATIONAL Intershield 300V Aluminum, to a minimum of 6 mils (DFT) to all prepared surface areas repaired in this Work Item.

27. PAINTING OF VESSEL GUARD, FULL COAT {MAINTENANCE}

A. Apply one (1) full coat of INTERNATIONAL Intertuf 262, Black, to a minimum of 5 mils (DFT) to the entire guard.

28. SPOT BLASTING AND ANTI-CORROSION COATING OF THE HULL {MAINTENANCE}

NOTE:

For purposes of bidding assume that 7,000 square feet of the hull will be blasted to an SSPC-SP 6, Commercial Blast Cleaning, from bottom of the guard to the keel, including flat keel, all horizontal and vertical surfaces of the guard, sea chests, strainer plates and rudder. Upon completion of the blasting, the Contract will be adjusted upward or downward, prorated based on the Item Price.

NOTE:

The Contractor shall have the option to UHP-WJ4, Ultrahigh-Pressure Water Jetting only if the hull profile is taken and is within the required profile in WSF 001 and approved by the WSF Inspector.

A. Blast areas of abrasion, corrosion, and steel repairs from bottom of guard to the keel; including flat keel, all horizontal and vertical surfaces of the guard, sea chests, strainer plates and rudder, to an SSPC-SP 6, Commercial Blast Cleaning, as authorized by the WSF Inspector.

B. The existing coating that is surrounding the blasted area, for at least two inches (2"), shall be feathered to a smooth surface. No visual edge between existing and new painting coats will be allowed.

C. Apply (1) one coat of INTERNATIONAL Intershield 300V Bronze, to a minimum of 6 mils (DFT) to all prepared surface areas in this Item.

D. Apply one (1) coat of INTERNATIONAL Intershield 300V Aluminum, to a minimum of 6 mils (DFT) to all prepared surface areas in this Item.

29. PAINTING OF VESSEL HULL, BELOW WATERLINE ANTI-FOULING (SPOT COAT)
{MAINTENANCE}

NOTE:

For purpose of bidding assume that 5,000 square feet of the hull below the waterline will require an anti-fouling coat. The Contract will be adjusted upward or downward, prorated based on the Item Price, using the square footage determined in Grit Blasting Hull Item.

A. Apply one (1) full coat of INTERNATIONAL Interspeed 640-BRA 640 Red to a minimum of 4 mils (DFT) to all areas prepared below the waterline.

30. PAINTING OF VESSEL HULL, BELOW WATERLINE ANTI-FOULING (FULL COATS)
[MAINTENANCE]

A. Apply one (1) full coat of INTERNATIONAL Interspeed 640-BRA 642 Black to a minimum of 4 mils (DFT) to all surfaces of hull below the waterline.

31. PAINTING OF VESSEL HULL, ABOVE WATERLINE TOP COATING
{MAINTENANCE}

NOTE:

For purposes of bidding assume that 2,000 square feet of the hull above the waterline will require a topcoat. The Contract will be adjusted upward or downward, prorated based on the Item Price, using the square footage determined in Grit Blasting Hull Item.

A. Apply one (1) coat of INTERNATIONAL Intercare 755, WSF Green, to a minimum of 3 mils (DFT) to cover all surfaces prepared above waterline.

32. DRAFT, HULL AND RUDDER MARKINGS
{MAINTENANCE}

A. Repaint all existing draft marks and underwater hull markings, using INTERNATIONAL Interlux Y5584, Shark White.

33. PREPARATION AND PAINTING OF ZONE NO. 1, EXTERIOR CURTAIN PLATES

A. Prepare and coat ALL outboard exterior surfaces of the curtain plate.

B. Take measurement of where Green and White surface meet on the exterior surfaces to ensure the same measurement is kept with the new paint coats.

C. Prior to grit blasting or painting, apply protection to all other surfaces and areas from contaminants from grit blasting or painting. Conduct an inspection with the WSF Inspector and Vessel Staff Chief Engineer for acceptance and approval of protected and covered areas; and ensure it is in accordance with **WSF 001**.

D. Perform a Low-Pressure Water Cleaning (LP WC) at 3,000 - 3,500 PSI in accordance with SSPC-SP 12/NACE 5. The wand shall be held no more than twelve inches (12") from the surface being washed. The wash shall leave no salt or other contaminants or residue after the surface dries from washing.

E. Grit blast the entire surface of the Port and Starboard exterior curtain plating, from the outboard top horizontal surface of the rub-rail to the lower Passenger Deck level and from the curtain plate extremes at No. 1 and No. 2 End, including the inboard side back to frame 91, including the anchor stowage area and anchor, hawse pipe, fixtures, vents and louvers, including edges of car deck openings in curtain plate inboard one inch (1"), to an SSPC-SP 6, Commercial Blast Cleaning.

F Apply one (1) coat of Intershield 300V Bronze, to a minimum of 6 mils (DFT) to prepared surfaces.

G. Apply one (1) coat of INTERNATIONAL Intershield 300V Aluminum, to a minimum of 6 mils (DFT) to prepared surfaces.

H. Apply one (1) topcoat of INTERNATIONAL Interthane 990, to obtain minimum 3 - 4 mils (DFT), to prepared surfaces. Colors shall be as detailed in **WSF 001**.

I. If any other color is removed it shall be repainted to match the original removed color and only in the original location, and be approved by the WSF Inspector.

34. PREPARATION AND PAINTING OF ZONE NO. 5, EXTERIOR OUTBOARD SIDES OF PASSENGER CABIN

{STRUCTURAL PRESERVATION-TOPSIDE}

A. Prepare and coat ALL outboard exterior surfaces of the passenger decks.

B. Perform an inspection of the entire area to be prepared and painted with the WSF Inspector prior to proceeding with any Preparation or Painting. Renew the starboard side passenger deck grabrail using **IFB Vol. II DWGS, WSF DWG A75-005-08, Jumbo Mark II Class Ferry, Exterior Guardrails & Grabrails** as guidance. **WSF DWG A76-016-03, Jumbo Mark II Class Ferry, Safety Devices,** is provided for guidance.

C. Remove and reinstall all interferences as necessary to complete this Work, including but not limited to the safety cable system using **WSF DWG A76-016-03** for guidance. Renew the fasteners when reinstalling using 316 Stainless Steel fasteners.

D. Perform a Low-Pressure Water Cleaning (LP WC) at 3,000 - 3,500 PSI in accordance with SSPC-SP 12/NACE 5. The wand shall be held no more than twelve inches (12") from the surface being washed. The wash shall leave no salt or other contaminants or residue after the surface dries from washing.

E. Prior to grit blasting or painting, apply protection to all windows and other surfaces to prevent any source of damage and to protect other surfaces from grit blasting and any overspray. Conduct an inspection with the WSF Inspector and Vessel Staff Chief Engineer for acceptance and approval of protected and covered areas and ensure it is in accordance with **WSF 001**.

F. Renew the handrail located below the passenger deck windows on the starboard side. Renew the existing one inch (1") schedule 40 handrail from the ¾" round bar supports along the passenger deck exterior, using **section 25-B** of **WSF DWG A75-005-08, Exterior Guardrails and Grabrails** as guidance. Do not disturb the ¾" round bar to passenger deck curtain plate connection.

G. Grit blast the entire exterior surface of the Port and Starboard passenger cabin from the curtain plate, including the deck trough between the curtain plate to passenger deck, to the top of the passenger cabin exterior, including the sun deck bulwarks from approximately frames 55 to 75, No. 1 and No. 2 Ends, Port and Starboard, safety handrails below the windows, overhang above the windows, drain pipes and hangers to an SSPC-SP 6, Commercial Blast Cleaning.

NOTE:

All other surfaces including the inside edge of the top of the exterior cabin, hand rail, screens and stanchions will require preparation and painting if damaged by grit blasting or paint overspray.

H. Apply one (1) coat of Intershield 300V Bronze, to a minimum of 6 mils (DFT) to prepared surfaces.

I. Apply one (1) coat of INTERNATIONAL Intershield 300V Aluminum, to a minimum of 6 mils (DFT) to prepared surfaces.

J. Apply one (1) topcoat of INTERNATIONAL Interthane 990, to obtain minimum 3 - 4 mils (DFT), to prepared surfaces. Colors shall be as detailed in **WSF 001.**

K. If any other color is removed it shall be repainted to match the original removed color and only in the exact original location, and be accepted by the WSF Inspector.

L. Upon completion of painting, the Contractor shall wash the external surfaces of all windows to remove any streaking, paint, paint chips, and any other residue left by the water wash and painting.

M. Upon completion of all Work in the area, prove proper operation of all deck drains in the affected area.

35. BILGE PRESERVATION
[MAINTENANCE]

A. Prior to washing the engine rooms, pump rooms, motor rooms and shaft alleys, ensure all critical machinery is well covered and protected, prior to the start of any Work in the space. Prior to washing inspect the cover up to the satisfaction of the Vessel Staff Chief Engineer and the WSF Inspector.

B. Thoroughly degrease and clean the engine room bilges, motor room bilges, pump room bilges, tank room bilges, and shaft alley bilges by a water wash to SSPC-SP 12/NACE 5 Low Pressure Water Cleaning (LP WC) using appropriate degreaser. Clean the complete and entire bilges in the engine rooms, tank rooms, pump rooms, motor rooms and shaft alley bilges thoroughly with a detergent/water power wash. Detergent-water mix must be such that a soapy residue is not left in bilges. Upon completion of cleaning submit areas for WSF inspection.

1. Perform a test for soluble salts chlorides using the Bresle patch method. Test one (1) reading per 200 square feet in the areas listed in Paragraph C, to satisfactory chloride/conductivity measurements that shall not exceed 3µg/cm².

2. Test for residual grease and oil using the black light technique. Use the ultraviolet light technique to test for grease or oil contamination on all of the prepared surfaces. Zero visible contamination on prepared surfaces is allowed.

C. Prepare areas including foundations and framing in the following areas to an SSPC-SP 11 Power Tool Cleaning to bare steel:

NOTE:

For bidding purposes assume 1,000 total square feet of failed coating requiring SSPC-SP 11 preparation and coating. The Contract Price will be adjusted upwards or downwards, based on the SSPC-SP 11 Unit Price, to reflect any difference in areas of failed coating.

1. Shaft Alley No. 2 stern tube area, eighteen inches (18") away from the hull on foundations and framing, from frames 70 through 74, Starboard A strake.

2. Apply two (2) coats of INTERNATIONAL Intershield 300, to a minimum of 5 mils (DFT) each coat for a total of 10 mils (DFT). The back sides, corners and sharp edges of all angles, rat holes, weld seams, scallops, and beams shall be hand-striped using Intershield 300. The first coat shall be Off White and the second coat shall be Haze Gray. Hand-stripe all edges. Ventilate the space until the paint is cured with no solvent odor.

3. Provide dehumidification with a minimum of four (4) air exchanges per hour during all coating stages.

4. Take profile readings of prepared areas and provide a report to the WSF Inspector prior to coating.

D. All coatings will be completed and thoroughly cured on drydock.

E. Prior to the removal of protective machinery covering, clean the engine rooms, motor rooms, pump rooms and shaft alleys of all dust and debris to the satisfaction of the Vessel Staff Chief Engineer and the WSF Inspector. Wipe down all major equipment after removal of protective covering.

36. RENEW AUTOMATIC DRAFT INDICATING SYSTEM (ADIS) SENSORS

A. Remove the existing ADIS sensors and install new WSF provided sensors using **IFB Vol. II DWGS**, **WSF DWG 8111-607-002-01, MV Tacoma, Jumbo Mark II Class Ferry, Automatic Draft Indication System Hull Installation** and **WSF DWG 8111-607-095-01, MV Tacoma, Automatic Draft Indication System Electrical Installation** as guidance.

B. Pre-test the existing ADIS system prior to removals while the Vessel is still afloat.

C. Remove the existing transceiver units and disconnect back to the junction boxes located on the lower vehicle deck.

NOTE:

The transceiver units have been difficult to remove in the past due to corrosion between the transceiver and the support tube. Temporary saddle structure may need to be welded under the existing ADIS units to use hydraulic jacks for removal.

D. Install new WSF provided transceivers in place of the removed existing transceivers.

E. Test the new installation using **IFB Volume II, Supplemental Specifications and Contract Drawings, Supplemental Specification, WSF 002, Electrical Installation Specifications** as guidance.

F. Operational test the ADIS system to confirm the proper installation of the new transceivers once the Vessel is re-floated.

G. Provide the services of a Weir Jones Technical Representative to check the transceiver installation and provide start-up/calibration/commissioning services.

Contact information:

Vladimir Jovicic B.Sc., B.ASc., EIT
Project Manager
Weir-Jones Group of Companies
2040 West 10th Ave.
Vancouver B.C., Canada, V6J 2B3
Ph: (604) 732-8821 Fx: (604) 732-4801

H. In areas disturbed by this Work, remove and restore paint as necessary. Prepare surfaces to an SSPC-SP 3, Power Tool Cleaning, and apply two (2) coats of INTERNATIONAL Intershield 300, to a minimum of 5 mils (DFT) each coat for a total of 10 mils (DFT). The back sides, corners and sharp edges of all angles, rat holes, weld seams, scallops, and beams shall be hand-striped using Intershield 300. Topcoat areas disturbed with International 990 to a minimum of 2 mils (DFT) to match surrounding areas.

37. UPPER VEHICLE DECK DOOR RENEWAL

A. Renew Upper Vehicle deck doors D307, D308, D309 and D310 using **IFB Vol. II DWGS**, **WSF DWG A74-004-02, Jumbo Mark II Class Ferry, Door Schedule and Key Plan** and **WSF DWG A74-004-03, Jumbo Mark II Class Ferry, Door Hardware & Keying Schedule** as reference.

1. Known door suppliers are :

a) US Joiner
Aaron Wymore
Production Manager
Pacific Northwest Division
US Joiner LLC
(541) 386-1010
aaron.wymore@usjoiner.com

b) Pacific Coast Marine
Rick Doty
6000 – 23rd Drive West
Everett, WA 9820
(425) 745-9500
rickd@pcmii.com

c) Ship Interior Systems LLC
Nathan Brennan
1767 12th Street #128
Hood River, OR 97031
(541) 490-1380
nathan@shipinteriorsystems.com

B. Remove and reinstall all interferences necessary to complete this Item including but not limited to security access equipment.

C. Remove doors D307, D308, D309 and D310 in their entirety, including the frame as **Category "D"**.

D. The new doors shall be Coast Guard approved class A-30 doors.

E. Upon completion of removals, conduct joint steel survey with the WSF Inspector.

1. For estimating purposes, assume three square feet (3 sq. ft.) of deck steel renewal underneath each of the existing thresholds for a total of twelve square feet (12 sq. ft.) of deck steel renewal. The deck steel renewal will be adjusted up or down based on the vehicle deck steel Unit Price.

F. Install the new doors. Install the door by continuous welding on the weather side and skip weld on the interior side. The Contractor shall sequence the weld to minimize warping of the doorframe.

G. The door shall be complete with all hardware, using **WSF DWG A74-004-03** as reference, including the stainless steel kick plates mounted on the interior. Any "or equal" request shall be approved by WSF Project Engineer.

H. Provide the service of the door manufacturer's Technical Representative to conduct final set up and adjustment to the satisfaction of the WSF and USCG Inspectors.

I. Trim the new double door to the existing bulkheads and overhead to provide a finished appearance. All metal pieces shall be powder coated with the color to match surrounding material.

J. The new doors and frames shall be prepared and coated as follows:

1. Coat all doors and their frames using the conventional spray application method.

2. Colors shall be Sherwin Williams Industrial Enamel WSF Beige to match new paneling and trim.

K. The doors and frames shall be prepared as follows:

1. All hinges, locks, closing devices, striker plates, door stops, etc. shall be protected from over spray.

2. Apply coating using conventional spray methods.

3. The final appearance shall be "as new factory finish" with a uniform even coating with no ripples or stipples.

4. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.

5. Provide finish coats that are compatible with primers used.

6. Apply primer coat to surfaces that have been cleaned and prepared for finish coating as soon as practicable after preparation and before subsequent surface deterioration.

7. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer.

8. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

9. Prime Coats: Before applying finish coats, apply rust inhibitive primer to act as an intermediate coat between existing painted surfaces and new coating.

10. Finish Coats: Completely cover surfaces to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, or other surface imperfections will not be acceptable.

11. Apply a dustcoat over the primer of finish paint in order to prevent runs and stop lifting.

12. Apply final coat of paint of uniform film thickness and with a semi gloss, smooth and clean appearance.

L. Set up the door closing devices and latches and prove proper operation of the doors to the satisfaction of the USCG and WSF Inspectors.

M. Prepare new and disturbed areas in way of this Work to an SSPC-SP 11, Power Tool Cleaning to bare steel. Apply one (1) coat of Intershield 300V Bronze, to a minimum of 6 mils (DFT). Apply one (1) coat of INTERNATIONAL Intershield 300V Aluminum, to a minimum of 6 mils (DFT). INTERNATIONAL Interthane 990, to obtain minimum 3-4 mils (DFT), to match existing color for the area.

N. All disturbed non-skid areas (minimum of one (1) square foot each) shall be prepared to an SSPC-SP 11 Power Tool Cleaning to bare steel. Apply one (1) anti-corrosive coat, Sherwin-Williams Corothane 1 Galva-Pac Zinc, Gray, to obtain 3 to 4 mils (DFT). Apply one (1) primer coat, American Safety MS 7CZLT, Gray, to obtain 4 to 5 mils (DFT). Apply one (1) NON-SKID coat, American Safety AS-250, to match surrounding.

38. CATHODIC PROTECTION EVALUATION

A. Provide the services of Farwest Corrosion (Harry Coulombe (310)-532-9524 Ext 1116) to evaluate both the active and passive cathodic protection systems.

B. The evaluation shall include the following:

1. Pre-Drydocking Surveys

i. Impressed Current Cathodic Protection (ICCP)

1. Obtain and review system data including manuals, recent logs, diver's reports, etc.

2. ICCP Hull Equipment: Locate anodes and reference electrodes (internal).

3. Shaft Grounding: Visually inspect and confirm resistance with portable meters. Record data.

4. ICCP Control Panels: Record and verify system size, serial number, and manufacturer. Visual inspection of connection terminals with system OFF. Record operating data with power ON in automatic mode. Check for current faults. Set to manual mode and increase current output while recording data. Set system back to automatic.

5. Remote Reference Electrode: Verify hull reference electrode calibration with external reference electrode plot with system OFF and in automatic.

ii. Marine Growth Prevention Systems (MGPS)

1. MGPS Anodes: locate anode locations, installation sleeve type, and visually inspect.

2. MGPS Control Panels: record system information, size, serial number, etc. visual inspection of connection terminals with power OFF. Record as found operating settings and information. Adjust current to full setting output, measure with portable ammeter, and record. Return all settings to as found.

iii. Provide report covering operating condition and recommendations for replacement/repair at drydock.

2. Drydocking Visual Inspections

i. Impressed Current Cathodic Protection (ICCP)

1. Inspect anode and reference electrode cofferdams (internal) and note if moisture and water ingress is present.

2. Locate ICCP hull anodes (external) and examine condition of anode/coating and carrier/supports. Advise if anodes need to be replaced and/or estimated service life remaining.

3. Locate reference electrodes (external), remove electrode shield (if applicable), and examine condition. Advise if replacement is necessary.

ii. Marine Growth Prevention Systems (MGPS)

1. Open and inspect anode mounting sleeves. Record condition and signs of water ingress if necessary.

2. Record and inspection pipe systems to verify system is operating efficiently.

3. Instruct shipyard on mounting sleeve cleaning procedure and installation of new anodes.

iii. Passive System (Zinc/Aluminum Anodes)

1. Locate sea chest sacrificial anodes and inspect to ensure anodes are consumed evenly.

2. Discuss all findings and recommendations with engineers and project managers. Instruct shipyard of repairs and recommendations.

3. System Commissioning

i. Impressed Current Cathodic Protection (ICCP)

1. Check and verify isolation of hull anodes/reference electrode with portable resistance meter.

2. Check reference electrode values with portable meter and verify consistency on control panel.

3. Ramp system in manual mode to 10%, 20%, and 50%. Record values and verify current with portable ammeter.

4. Conduct remote reference electrode plot to verify correct readings of reference electrodes.

5. Check shaft grounding system for continuity.

6. Leave system in Auto.

ii. Marine Growth Prevention System (MGPS)

1. Set each anode to full current output and verify with portable ammeter.

2. Ensure system is alarm free and each anode is capable of full current.

3. Leave system ON with factory recommended current settings.

4. Reports and Design

i. Field Technician to provide detailed report summing up conditions as found prior and after drydocking. Report to background information, drydock repairs, operating data, photographs, and data from logs.

ii. Provide Professional Corrosion Engineer to review Field Tech report and evaluate entire cathodic protection (ICCP) system after dry dock. Evaluation to include the ICCP system effectiveness, reference electrodes, shaft grounding, and power supply. P.E. to design and recommend aluminum sacrificial anode system to replace zinc anodes on rudders, sea chest, and other niche areas. P.E. to submit a design report with anode material, quantity, and location.

39. INSTALL SECURITY CAMERAS AND CARD READERS

A. Install new WSF provided security equipment using **IFB Vol. IV DWGS**, **WSF DWG 8111-639-095-01, M/V Tacoma, Homeland Security Plan; WSF DWG 8111-639-095-02, M/V Tacoma, Homeland Security Cabling & Wiring Diagram; WSF DWG 8111-639-095-03, M/V Tacoma, Homeland Security Wiring Details; WSF DWG 8111-642-095-01, M/V Tacoma, Super-LAN/Security & Surveillance Electrical Installation** and **WSF DWG 8111-639-021-01, M/V Tacoma, Security Door Lock & Card Reader Modifications,** at the following locations:

1. Remove the existing intrusion detectors to the electrical panel room (SD-ID-01), the emergency generator room (SD-ID-02), the emergency battery room (SD-ID-03), and the passenger deck electrical panel room No. 4 (PD-ID-01).

2. Install an exterior camera, card reader, intrusion detector, electric door lock, and request to exit device at (SD-D-12) mounted in the alcove on the port side at approximately frame 4 No. 1 End to the Emergency Generator room. Follow existing cable runs as close as practical down across the passenger deck to electrical panel room No. 4.

3. Install a card reader, intrusion detector, electric door lock, and request to exit device at (SD-D-13) on the starboard side approximately frame 3 No. 1 End to electrical panel room No. 5. Follow existing cable runs as close as practical down across the passenger deck and back up into the Secure Electric Equipment Room located adjacent to the No. 1 End crew's quarters.

4. Install an exterior camera, card reader, intrusion detector, electric door lock, and request to exit device at (SD-D-15) mounted on the starboard side approximately frame 12, No. 2 End outside of the Emergency battery room. Follow existing cable runs as close as practical down across the passenger deck and back up into the Secure Electric Equipment Room adjacent to the No. 1 End crew's quarters.

    a) Ensure that all electrical installations in the emergency battery room meet the necessary explosive proof requirements.

    b) Ensure that all electrical installations do not interfere with any of the existing battery handling gear (overhead trolley and chain fall hoist).

5. Install a card reader, intrusion detector, electric door lock, and request to exit device at (PD-D-01) on centerline approximately frame 50, No. 2 End to electrical panel room No. 4.

6. Install Steering Gear Room card readers LV-CR-01 and LV-CR-02 on the lower vehicle deck at frame 90 each End, one (1) to port and one (1) to starboard. Follow existing motion detector cable runs as close as practical back to access control panels located in their corresponding engine room.

NOTE:

Wherever new penetrations are required they shall maintain the watertight and fire ratings of the bulkhead or deck being penetrated. Existing non-poured bulkhead and deck penetrations may be reused. New Multi-Cable Transits shall be Nelson type. Test all deck, bulkhead and hull penetrations in company with and to the satisfaction of the USCG and WSF Inspectors, and the Staff Chief Engineer.

B. Remove and reinstall all interferences necessary to complete this Item, including but not limited to, insulation and sheet metal covering in the emergency battery room.

C. Utilize existing cable transits where possible. For estimating purposes assume installing one (1) No. 2 frame, multi cable transit (MCT), for each door upgrade, for a total of six (6) transits. The actual amount of cable transits installed will be adjusted up or down per the transit Unit Price.

D. Install new labels as required in accordance with the referenced drawings and **IFB Volume II, Supplemental Specifications and Contract Drawings, Supplemental Specification, WSF 002, Electrical Installation Specifications**.

E. Test all new installation in accordance with **WSF 002** in the presence of WSF Inspectors and the Vessel Staff Chief Engineer.

F. All new and disturbed areas shall be prepared to an SSPC-SP 11 Power Tool Cleaning, and coated with two (2) coats of contrasting colors, applied to a minimum of 5 mils (DFT) each, of International Intertuf 262 Epoxy and a top coat to match surrounding areas.

G. Coordinate final operational testing of all security equipment with WSF IT personnel No Later than **2 days prior** to Vessel Redelivery Date.

H. Upon completion, provide "red line" drawings of all drawings affected by the actual security system installations and modifications.

40. RESCUE BOAT / ANCHOR ROOM DECK COATINGS

1. Degrease the entire deck area at No. 1 and No. 2 Rescue Boat and Anchor handling room deck areas.

2. Grit blast the entire deck area in the rescue boat pocket areas to an SSPC-SP 10, Near White Blast Cleaning. Surface profile will be 2 to 4 mils, per **WSF 001**.

    1. Apply one (1) Coat of Sherwin-Williams Envirolastic AR 520 SS Polyurea, at 80 to 100 mils (DFT). Color to be Dark Gray with 40-60 Aluminum oxide non-skid to the prepared area.

    2. Apply one (1) Coat of Sherwin-Williams Envirolastic AR200 HD Polyurea, at 10 to 20 mils (DFT). Color to be Dark Gray.

    3. **NOTE:**

        The Contractor is to provide a sample of the complete coating system prior to the application on the Vessel. The finish surface shall not become slippery when wet.

3. Renew all signage and markings.

    1. Apply a four inch (4") Safety Yellow safety striping at the deck edge across the pocket opening.

4. Provide labor, material and equipment to retest the weather deck drains and scuttle drains for flow in the presence of the WSF Inspector and the Vessel Staff Chief Engineer upon completion of painting and cleanup Work. Plugged drains found shall be cleaned and re-opened to full flow at the Contractor's expense.

41. PUBLIC ADDRESS SYSTEM SPEAKER MODIFICATIONS

A. Renew Public Address Speakers throughout the Vessel using **IFB Vol. III, WSF DWG A62-095-01, Jumbo Mark II Class Ferry, Public Address System, Circuit 1 MC,** for guidance.

B. Renew Public Address Speakers in the following locations with TOA® model SC-615-T Speakers mounted with YS-151S Swivel mounts set to 3.8 watts.

Outboard upper/lower Vehicle decks	= **40 speakers**
Pickle forks	= **4 speakers**
Sun deck	= **8 speakers**
Total	= **52 horns**

C. Remove and reinstall all interferences to complete this Item.

D. Install new speakers and cables to the existing junction boxes as shown using **WSF DWG A62-095-01.** All new equipment shall be installed using 316 stainless steel hardware including cable hangers.

E. Cables shall be installed into each speaker and junction box using water tight cord grips. Cables shall be cut in and not stripped with two feet (2') left inside of each junction box and speaker. WSF personnel will complete final hook up of all cables. Provide a man lift and operator to allow WSF personnel to perform hook up and testing.

F. Prepare new and disturbed surfaces in way of this Work to an SSPC-SP 11, Power Tool Cleaning to bare steel. Apply one (1) coat of INTERNATIONAL Intertuf 262 Red Epoxy anti-corrosive at 5 mils (DFT). Apply one (1) coat of INTERNATIONAL Intertuf 262 Grey Epoxy anti-corrosive at 5 mils (DFT). Apply one (1) topcoat of INTERNATIONAL Intercare 755 Gloss Finish at a minimum of 2 mils (DFT) to match existing color for the area.

42. VEHICLE DECK LIGHTING RENEWAL

1. Renew all of the fluorescent deck lighting located throughout the upper and lower outboard vehicle decks using **IFB Vol. III DWGS, WSF DWG A63-092-07, Jumbo Mark II Class Ferry, Lighting & Low Voltage Power, Vehicle Decks (FR 30 to 100 End No. 1); WSF DWG A63-092-08, Jumbo Mark II Class Ferry, Lighting & Low Voltage Power, Vehicle Decks (FR 30 to 30 Midships); WSF DWG A63-092-09, Jumbo Mark II Class Ferry, Lighting & Low Voltage Power, Vehicle Decks (FR 30 to 100 End No. 2);** and Military Standard MIL-F-16377 for guidance.

2. Renew all of the Glamox fluorescent light fixtures throughout the vehicle decks with the following lights:

    1. For model number GLIR 220-T8-PC use new model number GKI 1131 as described:

        GKI 217 EL R L 1/6, 2X17W, 120VAC/ 60Hz, IP67 Watertight, UL Approved, Housing of Aluzinc sheet steel deep drawn Epoxy powder coated white RAL 9016, Cable entry 4xM20 one (1) polyamide gland one (1) polyamide blind plug each end, Through wiring feature standard, Terminal block connection standard, High impact clear polycarbonate lenses standard, Min Start temp -18C, R = Reflector, L = Lanyard, Replacement Unit for GLIN 1014, Watertight Multipurpose Luminaire Surface Mount for decks, machinery spaces, stores, holds etc.

    2. For model number GLIR 240-T8-PC use new model number GKI 1132 as described:

        GKI 232 EL R L 1/6, 2X32W, 120VAC/ 60Hz, IP67 Watertight, UL Approved, Housing of Aluzinc sheet Steel deep drawn Epoxy powder coated white RAL 9016, Cable entry 4xM20 one (1) polyamide gland one (1) polyamide blind plug each end, Through wiring feature standard, Terminal block connection standard, High impact clear polycarbonate lenses standard, Min Start temp -18C, R = Reflector, L = Lanyard, Replacement Unit for GLIN 1015, Watertight Multipurpose Luminaire Surface Mount for decks, machinery spaces, stores, holds etc.

    3. Install the upgraded models for all other styles of Glamox light models not listed above throughout the entire vehicle deck areas.

3. Provide new lamps and ballasts for all new lighting.

4. Renew all of the lighting shock mounts with 316SS material using MIL-F-16377 or an equal design for guidance. Renew all of the mounting fasteners with 316 stainless steel fasteners.

5. Test all renewed lights at completion for proper operation to the satisfaction of WSF Inspectors and the Vessel Staff Chief Engineer.

TOPSIDE PREPARATION AND PAINTING

TOPSIDE ZONE DESCRIPTIONS

M.V. Tacoma is divided into nine (9) Zones for inspection, surface preparation, painting, and bidding purposes. No areas in the Zones have been intentionally omitted for preparation or painting. It is the Contractor's responsibility to prepare and coat all surfaces as required by the Specifications. The following Zone descriptions are provided for identification purposes.

NOTE:

Prior to commencing surface preparation the Contractor will present all areas for inspection, by the WSF Inspector and the Vessel Staff Chief Engineer, of the protective measures taken to prevent harm or damage to the Vessel's equipment, other surfaces, and systems. Locks are of particular interest due to vulnerability to surface preparation debris. Locks are to be completely sealed prior to beginning surface preparation.

Zone No. 1 **Port and Starboard Exterior Curtain Plating** from the inboard top edge of the Guard to the Passenger Deck level and from the Curtain Plate extremes at No. 1 and No. 2 End, including the Anchor stowage area and Anchor, Fixtures, Vents and Louvers.

Zone No. 2 **Upper Vehicle Deck and Lower Vehicle Deck outboard vehicle lanes** from and including the inside side of frame 78 No. 1 End to inside side of frame 78 No. 2 End. This Zone includes all inboard Curtain Plate surface areas, from the outboard side of the Haunch Girders outboard to the curtain plates, including the vertical surfaces of the haunch girder to the vehicle deck, the outboard Machinery Casing and overhead including all frames and girders, all Ramp surfaces, inboard and athwart ship bulkheads of the ramps, doors at the casing ends, Life jacket lockers and locker interiors, including all Boat Stations, Curbing, Cleats, Bollards, Chocks, and Tie Downs, Light Fixtures, Bells, Fire Hose Stations, Fire extinguisher boxes and stations, Ventilation Ducting, Vent Louvers, Piping, Fueling Stations, Life Raft launching stations, Vent Piping, Doors (including the interior edges), and all Appurtenances.

Zone No. 3 **Vehicle Deck Center** vehicle lanes area between the inboard side of end web frame 78 at No. 1 End to the inboard side of end web frame at frame 78 at No. 2 End, between the haunch girders/casings. This area includes inboard Machinery Casings surfaces, Inboard vertical surfaces of the haunch girder to the vehicle deck, Overhead, Ventilation Louvers, Ventilation Ducting, Piping, Curbing, Light Fixtures, Doors (including the interior edges), Life jacket lockers and locker interiors, and all Appendages, including all Machinery Casing vestibules.

Zone No. 4 **Vehicle Deck Ends No. 1 and No. 2** from the outside of frame 78 to the extreme Ends. This area includes all inboard Curtain Plate surface areas, Overhead areas above the ramps including the outside side of main centerline web frame 78 out to each extreme End, including the centerline areas, all frames and girders, Passenger deck level Picklefork coamings from curtain plate to curtain plate, Curbing, Cleats, Bollards, Chocks, and Tie Downs, Light Fixtures, Bells, Fire Hose Stations, Fire extinguisher boxes and stations, Ventilation Ducting, Vent Louvers, Piping, Fueling Stations, Doors (including the interior edges), and all Appurtenances.

Zone No. 5 **Passenger Deck exterior surfaces** (outside of the Passenger Cabin) from the Passenger Deck level to the top edge of the Curtain Plate above the Passenger Cabin windows and below the Sun Deck handrail screens. Includes all weather surfaces of both the Port and Starboard Passenger Cabin exteriors, Troughs and Safety Handrails below the windows, overhang above the windows, Drain Pipes and hangers, No. 1 and No. 2 End, Passenger Embarkation exteriors, No. 1 and No. 2 End, Passenger Embarkation area interiors, No. 1 and No. 2 End Picklefork areas, Doors (including the interior edges), all attachments and Appurtenances, Ladders, Overheads, Bulkheads, Fire Stations, Doors and Passenger seating.

Zone No. 6 **Sun Deck exterior surfaces**, beginning at the top edge of the Curtain Plate above the Passenger Cabin windows and extending to ten feet (10') above the deck surfaces and house tops. All exterior surfaces of No. 1 and No. 2 End Pilot houses, Sun house (Crews Quarters), Solariums, Midship house, Stairway shelters, Exhaust stacks, Doors (including the interior edges), Vent louvers, Vent trunks, Ladders, Passenger benches, Deck Edge Coaming, Vestibules, Masts and all other Appurtenances. The deck surfaces and housetops are Zone No. 6.

Zone No. 7 **Deck surface areas**. Includes Sun Deck level deck and all Housetops, Passenger Deck level decks, Promenades and Picklefork, Upper Vehicle Deck and Lower Vehicle Deck walkways and all Ladders, Stairways, Landings, Safety areas and Non - Skid.

Zone No. 8 **Stairway vertical and overhead surfaces** from Lower Vehicle Deck to Passenger Deck, Doors (including the interior edges).

Zone No. 9 **Handrails, Railings, Screens, and Gates** on all decks, Ladders, Walkways and Ramps from the Lower Vehicle Deck to the top of the Mast.

Zone No. 10 **All Solarium interior surfaces**, No. 1 and No. 2 Ends, including Doors (including the interior edges).

43. DECK DRAINS
{MAINTENANCE}

A. Clean and test all weather deck drains, hatch and scuttle drains for flow in the presence of the Vessel Staff Chief Engineer and the WSF Inspector using **IFB Vol. III**, **WSF DWG A52-011-94, Jumbo Mark II Class Ferry, Weather Deck Drain System Diagrammatic Arrangement** prior to commencing with the **Fresh Water Wash**. Provide a detailed report at the completion of pre-testing for use at final inspections.

B. Ensure that weather deck drains, hatch and scuttle drains are securely covered during grit blasting operations.

C. Provide labor, material and equipment to retest the weather deck, hatch and scuttle drains for flow in the presence of the Vessel Staff Chief Engineer and the WSF Inspector upon completion of painting and cleanup Work. Plugged drains found shall be cleaned and reopened at the Contractor's expense.

44. FRESH WATER WASH

A. Perform a Low Pressure Water Cleaning (LP WC) at 3,000 - 5,000 PSI to achieve a condition of SC-1 IAW Table 2 (Non-visual Surface Preparation Definitions) in SSPC-SP 12/NACE 5 Publication, in Zone Nos. 2, 3, 4, 5, 6, 7, 8 and 9. The wand shall be held no more that twelve-inches (12") from surface being washed. Use AMERON, Prep 88 or International GMA for detergent since the intent is to etch the surface. The intent of this Work Item is to wash **all** surfaces in Zone Nos. 2, 3, 4, 5, 6, 7, 8, 9 and 10 as described in the Zone Description for Topside Painting.

1. The Contractor is advised to exercise care and caution to assure that all insulation, light fixtures, speakers, cabling, alarms, signage, and appurtenances are protected and not damaged during the course of this Work.

2. Remove and renew all exterior insulation located on the vehicle decks. Map out and remove existing insulation located throughout the enter vehicle decks areas. At completion of Coatings Renew all removed insulation and topcoat to match surrounding paint zones.

B. Perform an inspection of the entire fresh water washed areas to the satisfaction of the WSF Inspector prior to proceeding with any preparation for painting or painting.

NOTE:

For bidding purposes assume that 2,000 Square Feet will require additional hand scrubbing with Ameron, Prep 88 or International GMA, and staging, in various areas of the Zones listed above, as authorized by WSF Inspector, to remove scuffs, heavy soiled areas, exhaust covered areas, and other foreign matter. Upon completion, the Contract will be adjusted upward or downward using the hand scrubbing Unit Price to account for the actual area authorized by the WSF Inspector.

C. Hand scrub as necessary, areas as authorized by the WSF Inspector to remove scuffs, heavy soiled areas, exhaust stained areas, and similar painted surfaces.

D. Upon completion of **Fresh Water Wash**, the Contractor shall wash the external surfaces of all windows to remove any streaking, paint chips, and any other residue left by the water wash. The Contractor will use care when washing the windows not to cause scratching.

45. PREPARATION AND PAINTING OF ZONE NO. 2, UPPER VEHICLE DECK AND LOWER VEHICLE DECK

{STRUCTURAL PRESERVATION}

A. Prepare and coat ALL exterior surfaces of Zone No. 2 **Upper Vehicle Deck And Lower Vehicle Deck.**

1. Include the inboard vertical sides of the haunch girders from the passenger deck down to the vehicle decks in this Item.

B. Prepare 100% of Zone No. 2, Passenger deck exterior to an SSPC-SP 6, Commercial Blast Cleaning.

1. Include the inboard vertical sides of the haunch girders from the passenger deck down to the vehicle decks in this Item.

2. The Contractor shall exercise care and caution to assure that all door knobs and hardware, insulation, light fixtures, speakers, security equipment, MES and associated equipment, cabling, alarms and appurtenances are protected and not damaged during the course of this Work. Temporarily remove all signage, scupper covers, fire extinguisher and fire axe boxes to ensure proper preparation and coating. Temporarily lower and support all light fixtures, speakers, security equipment, fans, motors, and all other panels and controllers to ensure that the faying surfaces are properly prepared and coated in way of 100% preparation areas including temporary access opening doors and hatches. Renew all cable trays, nelson clips, and tubular banded clips with stainless steel material prior to coating.

3. Assume that thirty (30) each ¼ dia." x 1½" long weld studs will need to be renewed. The price will be adjusted per the stud weld Unit Price.

4. Assume that forty (40) each ¼ dia." x 1½" long weld studs will need to be renewed using Click Bond® Adhesive bonded CS125 Threaded studs. The price will be adjusted per the Click Bond® Unit Price.

5. Temporarily remove all externally mounted fans and blank off associated ducting as close to the deck/bulkhead as possible. Prepare and coat the ducting in accordance with the associated Zone. Reinstall the fans after the completion of the Zones coatings. Test the fans to the satisfaction of WSF Inspectors.

6. Remove and renew all exterior insulation located on the vehicle decks. Map out and remove existing insulation located throughout the enter vehicle decks areas. At completion of Coatings, renew all removed insulation and topcoat to match surrounding paint Zones.

7. Prepare and Coat Freeing ports

a) Temporarily remove all curb plates in way of upper and lower vehicle deck freeing ports and deck gutter drains using **IFB Vol. III**, **WSF DWG A75-630-01, Jumbo Mark II Class Ferry, Vehicle Curbing,** as guidance.

NOTE:

For purposes of bidding, assume that up to (146) 50 % of the (292 total) fasteners will need to be drilled out and re-tapped. The Contract will be adjusted upward or downward to account for the actual weld authorized by the WSF Inspector, based on the freeing port fastener removal Unit Price.

b) Prepare all removed freeing port covers to an SSPC-SP 6.

c) Coat all covers to match the curbing.

d) Re-install the freeing port covers using new countersunk flat head Brass fasteners.

C. Coat all surfaces in Zone No. 2 as follows and using **IFB Volume II, Supplemental Specifications and Contract Drawings, Supplemental Specification, WSF 001, Marine Coating and Color Scheme Specifications**:

1. One (1) full coat of International Interzinc 52 Green Zinc (EPA175/A3GL) at 3.0 DFT.

2. One (1) full coat of International Intershield 300V Bronze epoxy anti-corrosive (ENA310/A5GL) at 6.0 DFT.

3. One (1) stripe coat of International Intershield 300V Aluminum epoxy anti-corrosive (ENA311/A5GL) to all high rust bleed areas including but not limited to backs of angles, cutouts, pipe clamps and hangers, welds, pitting and porosity.

4. One (1) full coat of International Intershield 300V Aluminum (ENA311/A5GL) at 6.0 DFT.

5. One (1) "Tack" coat of International Interthane 990 Gloss color coat at 1.0 DFT.

6. One (1) full coat of International Interthane 990 Gloss color coat at 2.0 DFT.

D. Upon completion of all Work in the area, prove proper operation of all deck drains, hatch and scuttle drains in the affected Zone.

46. PREPARATION AND PAINTING OF ZONE NO. 4, VEHICLE DECK ENDS EXTERIOR SURFACES

A. Prepare and coat ALL exterior surfaces of Zone No. 4, Vehicle Deck Ends No. 1 and No. 2.

B. Prepare 100% of Zone No. 4, Vehicle Deck Ends No. 1 and No. 2, to an SSPC-SP 6, Commercial Blast Cleaning.

1. The Contractor shall exercise care and caution to assure that all door knobs and hardware, insulation, light fixtures, speakers, security equipment, MES and associated equipment, cabling, alarms and appurtenances are protected and not damaged during the course of this Work. Temporarily remove all signage, scupper covers, fire extinguisher and fire axe boxes to ensure proper preparation and coating. Temporarily lower and support all light fixtures, speakers, security equipment, and all other panels and controllers to ensure that the faying surfaces are properly prepared and coated in way of 100% preparation areas. Renew all cable trays, nelson clips, and tubular banded clips with stainless steel material prior to coating.

2. Assume that ten (10) each ¼" dia. x 1½" long weld studs will need to be renewed. The price will be adjusted per the stud weld Unit Price.

3. Assume that twenty (20) each ¼" dia. x 1½" long weld studs will need to be renewed using Click Bond® Adhesive bonded CS125 Threaded studs. The price will be adjusted per the Click Bond® Unit Price.

C. Coat all surfaces in Zone No. 4 as follows and using **WSF 001.**

1. One (1) full coat of International Interzinc 52 Green Zinc (EPA175/A3GL) at 3.0 DFT.

2. One (1) full coat of International Intershield 300V Bronze epoxy anticorrosive (ENA310/A5GL) at 6.0 DFT.

3. One (1) stripe coat of International Intershield 300V Aluminum epoxy anti-corrosive (ENA311/A5GL) to all high rust bleed areas including but not limited to backs of angles, cutouts, pipe clamps and hangers, welds, pitting, porosity.

4. One (1) full coat of International Intershield 300V Aluminum (ENA311/A5GL) at 6.0 DFT.

5. One (1) "Tack" coat of International Interthane 990 Gloss color coat at 1.0 DFT.

6. One (1) full coat of International Interthane 990 Gloss color coat at 2.0 DFT.

D. Upon completion of all Work in the area, prove proper operation of all deck drains, hatch and scuttle drains in the affected area.

E. Upon completion of Painting, the Contractor shall wash the external surfaces of all windows to remove any streaking, paint, paint chips, and any other residue left by the water wash and painting.

47. PREPARATION AND PAINTING OF ZONE NO. 5, PASSENGER DECK EXTERIOR SURFACES

A. Prepare and coat ALL forward and aft exterior surfaces of Zone No. 5, Passenger Decks.

B. Prepare 100% of Zone No. 5, Passenger Deck Exterior Surfaces, to an SSPC-SP 6, Commercial Blast Cleaning.

1. The Contractor shall exercise care and caution to assure that all door knobs and hardware, insulation, light fixtures, speakers, security equipment, MES and associated equipment, cabling, alarms and appurtenances are protected and not damaged during the course of this Work. Temporarily remove all signage, scupper covers, fire extinguisher and fire axe boxes to ensure proper preparation and coating. Temporarily lower and support all light fixtures, speakers, security equipment, and all other panels and controllers to ensure that the faying surfaces are properly prepared and coated in way of 100% preparation areas. Renew all cable trays, nelson clips, and tubular banded clips with stainless steel material prior to coating.

2. Assume that thirty (30) each ¼" dia. x 1½" long weld studs will need to be renewed. The price will be adjusted per the stud weld Unit Price.

3. Assume that (forty) 40 each ¼" dia. x 1½" long weld studs will need to be renewed using Click Bond® Adhesive bonded CS125 Threaded studs. The price will be adjusted per the Click Bond® Unit Price.

C. Coat all surfaces in Zone No. 5 as follows and using attachment **WSF 001.**

1. One (1) full coat of International Interzinc 52 Green Zinc (EPA175/A3GL) at 3.0 DFT.

2. One (1) full coat of International Intershield 300V Bronze epoxy anti-corrosive (ENA310/A5GL) at 6.0 DFT.

3. One (1) stripe coat of International Intershield 300V Aluminum epoxy anti-corrosive (ENA311/A5GL) to all high rust bleed areas including but not limited to backs of angles, cutouts, pipe clamps and hangers, welds, pitting and porosity.

4. One (1) full coat of International Intershield 300V Aluminum (ENA311/A5GL) at 6.0 DFT.

5. One (1) "Tack" coat of International Interthane 990 Gloss color coat at 1.0 DFT.

6. One (1) full coat of International Interthane 990 Gloss color coat at 2.0 DFT.

D. Upon completion of all Work in the area, prove proper operation of all deck drains, hatch and scuttle drains in the affected area.

E. Upon completion of painting, the Contractor shall wash the external surfaces of all windows to remove any streaking, paint, paint chips, and any other residue left by the water wash and painting.

48. PREPARATION AND PAINTING ZONE NO. 6, SUN DECK AND ABOVE

{STRUCTURAL PRESERVATION}

A. Prepare and coat ALL exterior surfaces of the sun deck and above.

B. Prepare 100% of Zone No. 6, Sun Deck exterior surfaces, to an SSPC-SP 6, Commercial Blast Cleaning.

1. The Contractor shall exercise care and caution to assure that all door knobs and hardware, insulation, light fixtures, speakers, security equipment, MES and associated equipment, cabling, alarms and appurtenances are protected and not damaged during the course of this Work. Temporarily remove all signage, scupper covers, fire extinguishers and fire axe boxes to ensure proper preparation and coating. Temporarily lower and support all light fixtures, speakers, security equipment, and all other panels and controllers to ensure that the faying surfaces are properly prepared and coated in way of 100% preparation areas. Renew all cable trays, nelson clips, and tubular banded clips with stainless steel material prior to coating.

2. Assume that thirty (30) each ¼" dia. x 1½" long weld studs will need to be renewed. The price will be adjusted per the stud weld Unit Price.

3. Assume that forty (40) each ¼" dia. x 1½" long weld studs will need to be renewed using Click Bond® Adhesive bonded CS125 Threaded studs. The price will be adjusted per the Click Bond® Unit Price.

C. Coat all surfaces in Zone No. 5 as follows and using **WSF 001**:

1. One (1) full coat of International Interzinc 52 Green Zinc (EPA175/A3GL) at 3.0 DFT.

2. One (1) full coat of International Intershield 300V Bronze epoxy anti-corrosive (ENA310/A5GL) at 6.0 DFT.

3. One (1) stripe coat of International Intershield 300V Aluminum epoxy anti-corrosive (ENA311/A5GL) to all high rust bleed areas including but not limited to backs of angles, cutouts, pipe clamps and hangers, welds, pitting and porosity.

4. One (1) full coat of International Intershield 300V Aluminum (ENA311/A5GL) at 6.0 DFT.

5. One (1) "Tack" coat of International Interthane 990 Gloss color coat at 1.0 DFT.

6. One (1) full coat of International Interthane 990 Gloss color coat at 2.0 DFT.

D. Upon completion of all Work in the area, prove proper operation of all deck drains, hatch and scuttle drains in the affected Zone.

E. Upon completion of painting, the Contractor shall wash the external surfaces of all windows to remove any streaking, paint, paint chips, and any other residue left by the water wash and painting.

49. PREPARATION AND PAINTING ZONE NO. 7, NON-SKID

A. Prepare and coat ALL exterior deck surfaces throughout the Vessel.

B. Prepare 100% of Zone No. 7, Exterior Deck surface areas, to an SSPC-SP 6, Commercial Blast Cleaning. Non-Skid and mark the deck using **IFB Vol. III, WSF DWG 8111-804-024-03, MV Tacoma, Vehicle Decks Markings (Provided by Addendum)** for reference.

1. If track blasting methods are used remove all traces of blast beads from all areas of the Vessel.

C. Coat all surfaces in Zone No. 7 as follows and using **WSF 001.**

1. Apply one (1) anti-corrosive coat, Sherwin-Williams Corothane 1 Galva-Pac Zinc, Gray, to obtain 3 to 4 mils (DFT) to all surfaces prepared under above. Apply one (1) primer coat, American Safety MS 7CZLT, Gray, to obtain 4 to 5 mils (DFT) to all surfaces prepared under above. Apply one (1) coat of Hempel, Hempathane 5595U, minimum 2 mils to 3 mils DFT, of the correct color, to topcoat the sun deck house tops and solarium tops, to a minimum of 2 mils (DFT).

2. Apply one (1) anti-corrosive coat, Sherwin-Williams Corothane 1 Galva-Pac Zinc, Gray, to obtain 3 to 4 mils (DFT) to all surfaces prepared under above. Apply one (1) primer coat, American Safety MS 7CZLT, Gray, to obtain 4 to 5 mils (DFT) to all surfaces prepared under above. Apply one (1) NON-SKID coat, American Safety AS-250, Haze Gray, to all surfaces prepared under above.

3. Apply one (1) coat of Hempel, Hempathane 5595U, of Haze Gray, to top coat the coaming area, to a minimum of 2 mils (DFT). Apply one (1) anti-corrosive coat of Sherwin Williams Corothane 1 Galva-Pac Zinc Green to obtain 3 to 4 mils (DFT) to all areas of the car deck which are not non-skidded.

D. Non-Skid the top surface of all vehicle deck curbing using Safety Yellow Non-Skid.

1. All curbing shall be non-skidded with American Safety AS-150 Safety Yellow on its entire top surface. Vertical surfaces are to be painted Safety Yellow.

E. Apply non-skid marking using **WSF DWG 8111-804-024-03** for reference.

50. PREPARATION AND PAINTING OF ZONE NO. 8, STAIRWAYS

A. Prepare 100% of Zone No. 8, Stairway Surfaces to an SSPC-SP 11, Power Tool Cleaning to Bare Metal. **IFB Vol. III**, **WSF DWG A74-025-03, Joiner Ceilings, Passenger Stairtowers**, sheets 17 and 18 are provided for guidance.

1. The Contractor shall exercise care and caution to assure that all door knobs and hardware, insulation, light fixtures, speakers, security equipment, MES and associated equipment, cabling, alarms and appurtenances are protected and not damaged during the course of this Work. Temporarily remove all signage, scupper covers, fire extinguisher and fire axe boxes to ensure proper preparation and coating. Temporarily lower and support all light fixtures, speakers, security equipment, and all other panels and controllers to ensure that the faying surfaces are properly prepared and coated in way of 100% preparation areas. Renew all cable trays, nelson clips, and tubular banded clips with stainless steel material prior to coating.

B. Renew all Dampa overhead ceiling panels and lighting.

C. Remove all deck covering and stair treads from all stairway steps from the main vehicle deck stairways to the upper vehicle deck landings.

D. Plug weld the stair structure where the fasteners from the existing stair treads penetrated. Grind flush and test to the satisfaction of the WSF Inspector.

E. Coat Zone No. 8 in accordance with **WSF 001**.

1. Non-skid all stairway decks. All existing deck non-skid walkways and deck non-skid shall be renewed to match the existing arrangement.

F. Upon completion of all **Coating** Items, install new "Wooster Products" stair treads from the lower vehicle deck stairways to the upper vehicle deck landings, matching the existing arrangement. The Manufacturer's Model Number is Type 500 Black with first two ribs Safety Yellow. Install with No. 10, 316 stainless steel tapped counter sunk machine screws.

51. PREPARATION AND PAINTING OF ZONE NO. 9, HANDRAILS {STRUCTURAL PRESERVATION}

A. Prepare and coat ALL exterior handrails throughout the Vessel.

B. Grit blast all areas of abrasion and corrosion on all handrails, railings, screens, and gates to a SSPC-SP 6, Commercial Blast Cleaning as authorized by WSF Inspector. **Care shall be taken as to not destroy any galvanized surfaces.**

C. **NOTE**:

For bidding purposes, assume that 5000 square feet shall require grit blasting and painting. Upon completion of the preparation and painting, the Contract will be adjusted upward or downward to account for the actual area authorized by the WSF Inspector.

D. Remove all deck railing/enclosure screens and all stairwell opening screens, and replace all existing mounting fasteners on all screens with new, Contractor furnished, Type 316 stainless steel fasteners, consisting of hex-head bolts, two (2) flat washers for each bolt, and nylok style nuts.

E. Repair all paint damaged by deck and other removals or installations in overhead of car lanes to SSPC-SP 3, Power Tool Cleaning. Apply one (1) coat of Hempel Hempadur epoxy 45811-1163, 4-8 mils DFT. Hand stripe all edges. Apply a topcoat of Hempel Hempathane 5595U, to a minimum of 2 - 4 mils (DFT) to match existing color.

F. Furnish and apply one (1) coat of Far West Formula 117, at 2 - 3 mils (DFT) to all galvanized and aluminum surfaces on hand rails, railings, gates, screens, and all other galvanized and aluminum surfaces prepared by blasting.

G. Apply one (1) full coat of Hempel, Hempadur Epoxy 45881-1163 to a minimum of 6 - 8 mils (DFT) on all surfaces of Zone No. 9.

H. Apply one (1) full coat of Hempel, Hempathane 5595U, to obtain a minimum of 2 - 4 mils (DFT), to cover, on all surfaces in Zone No. 9. Colors shall be as detailed in **WSF 001**.

52. PREPARATION AND PAINTING ZONE NO. 10, SOLARIUM INTERIORS

{STRUCTURAL PRESERVATION }

A. Prepare and coat ALL interior surfaces of the solariums.

B. Prepare 100% of Zone No. 10, Solarium internal surfaces, to an SSPC-SP 6, Commercial Blast Cleaning.

1. The Contractor shall exercise care and caution to assure that all door knobs and hardware, insulation, light fixtures, speakers, security equipment, MES and associated equipment, cabling, alarms and appurtenances are protected and not damaged during the course of this Work. Temporarily remove all signage, scupper covers, fire extinguisher and fire axe boxes to ensure proper preparation and coating. Temporarily lower and support all light fixtures, speakers, security equipment, and all other panels and controllers to ensure that the faying surfaces are properly prepared and coated in way of 100% preparation areas. Renew all cable trays, nelson clips, and tubular banded clips with stainless steel material prior to coating.

2. Assume that ten (10) each ¼" dia. x 1½" long weld studs will need to be renewed. The price will be adjusted per the stud weld Unit Price.

3. Assume that twenty (20) each ¼" dia. x 1½" long weld studs will need to be renewed using Click Bond® Adhesive bonded CS125 Threaded studs. The price will be adjusted per the Click Bond® Unit Price.

4. Temporarily remove all externally mounted fans and blank off associated ducting as close to the deck/bulkhead as possible. Prepare and coat the ducting in accordance with the associated Zone. Reinstall the fans after the completion of the Zones coatings. Test the fans to the satisfaction of WSF Inspectors.

C. Coat all surfaces in Zone No. 10 as follows and using **WSF 001**.

1. One (1) full coat of International Interzinc 52 Green Zinc (EPA175/A3GL) at 3.0 DFT.

2. One (1) full coat of International Intershield 300V Bronze epoxy anti-corrosive (ENA310/A5GL) at 6.0 DFT.

3. One (1) stripe coat of International Intershield 300V Aluminum epoxy anti-corrosive (ENA311/A5GL) to all high rust bleed areas including but not limited to backs of angles, cutouts, pipe clamps and hangers, welds, pitting and porosity.

4. One (1) full coat of International Intershield 300V Aluminum (ENA311/A5GL) at 6.0 DFT.

5. One (1) "Tack" coat of International Interthane 990 Gloss color coat at 1.0 DFT.

6. One (1) full coat of International Interthane 990 Gloss color coat at 2.0 DFT.

D. Upon completion of all Work in the area, prove proper operation of all deck drains, hatch and scuttle drains in the affected Zone.

E. Upon completion of painting, the Contractor shall wash the external surfaces of all windows to remove any streaking, paint, paint chips, and any other residue left by the water wash and painting.

53. ZONE NO. 10, SOLARIUMS, NO. 1 AND NO. 2, FRONT AND SIDE PANELS RENEWAL

NOTE:

This Item shall be completed in conjunction with the Preparation and Painting of Zone Nos. 6 and 10.

A. Remove all Promenade side, front, and overhead panels and gaskets located on No. 1 and No. 2 Ends of the Passenger Deck Solariums using **IFB Vol. III**, **WSF DWG A74-005-03, Jumbo Mark II Class Ferry, Solarium Windows** for guidance.

B. The Front and Side panels shall be removed as **Category "C"**.

C. The front and side panel gaskets shall be removed as **Category "D".**

D. The overhead panels and gaskets shall be removed as **Category "D".**

E. Inspect all steel structure and submit a report of recommended steel replacement.

1. For estimating purposes assume 200-lbs. of Solarium structure will require removal and replacement. The final amount will be adjusted up or down using the steel replacement Unit Price.

F. Complete all preparation and painting in the area prior to the start of reinstallation of new panels and the reinstallation of the existing windows.

G. Provide the services of Northwest Direct Glaze Inc. to prepare and reinstall the existing Promenade side and front window panels with new gaskets and sealant.

Contact Information:
Northwest Direct Glaze
Mr. Kennon Simmons
P.O. Box 577
Clinton, WA 98236
(360) 221-2303

H. The new overhead panels shall be constructed of Lucite acrylic, color 2370 Bronze, or equal.

I. Conduct a hose test on all windows in the presence of the WSF Inspector by directing a solid stream of fresh water, at a pressure of not less than 30 psig from a ¾" nozzle, against all windows. The stream shall be applied at a distance of 10 to 15 feet from the surface being tested. Zero leakage shall be the standard.

54. PREPARATION AND PAINTING OF LABELS AND MARKINGS

A. Renew all signage and markings throughout Zones being renewed, using **IFB Vol. V**, **WSF Contract Guidance Manuals, WSF Fleet Wide Exterior Signage Manual** and **IFB Vol. III DWGS, WSF DWG 8111-804-024-02, MV Tacoma, Exterior Fleetwide Label Plates (Provided by Addendum). WSF DWG 8110W-139-24-01, Jumbo Mark II Class Ferry, Safety Markings & Deck Stripes** and **WSF DWG 8000-804-024-10, Fleetwide Flying 'T' Stack Logo**, are provided as guidance.

1. **Signage in Zone No. 3, Vehicle Deck Center will not require renewal.**

B. Remove all stencils, marks, labels, signs, placards and operating instructions that are fastened to the surfaces of Zone Nos. 2 and 4 through 9, after mapping is completed, and prior to commencing the fresh water wash. Ensure all glue, adhesive, and tape is removed from the surfaces during the **Fresh Water Wash**.

C. Renew all signage and markings using **WSF Fleet Wide Exterior Signage Manual** and **WSF DWG 8111-804-024-02.**

D. Provide renewal of the two (2) WSF Stack Logo decals without the mounting plate directly to the Stack using **WSF DWG. 8110W-139-24-01** and **WSF DWG 8000-804-024-10** as guidance. The Stack Logos for Jumbo MK II Class Vessels are sixty inches (60") in diameter.

1. Remove the existing Stack logo decals. Remove the existing fasteners previously used to secure the Stack Logos and weld repair the holes closed. Grind the exterior Stacks flush in way of the logo installation.

2. Prepare and coat the Stack areas affected by this Work using the same system as Sun Deck system for Zone No. 5 in this Technical Specification.

E. Install two inch (2") tall black vinyl frame numbers on the upper and lower outboard vehicle deck deep frames at frame numbers 0, 6, 12, 18, 24, 30, 36, 42, 48, 54 and 60 Port and Starboard sides from frame 0 to both Ends. Center the numbers one inch (1") below the deep frame bracket.

55. CAULKING APPLICATION
{STRUCTURAL PRESERVATION}

NOTE:

Caulking compound shall be Sherwin-Williams, Stampede 1, White. Caulking compound is to be applied in accordance with the Sherwin-Williams recommendations related to surface preparation, thickness, width, and proper cure time prior to topcoating with paint.

A. Apply caulking compound to all non-welded areas between all skip welds where the existing caulking is removed by grit blasting or missing.

B. Caulking shall be applied after the application of the Hempel Hempadur Epoxy 4881 and prior to the application of the Hempel, Hempathane 5595U as the topcoat.

NOTE:

For bidding purposes, assume that 34,000 Lineal Feet of caulking shall be required for this Work Item. Upon completion of the preparation and painting, the Contract will be adjusted upward or downward to account for the actual area authorized by the WSF.

56. SUN DECK EXTERIOR BENCH SEATS POWDER COATING
{MAINTENANCE}

A. Remove all forty-one (41) Sun Deck Exterior bench seats and the forty (40) Sun Deck Solariums bench seats from the Vessel. **IFB Vol. III**, **WSF DWG A73-645-02, Jumbo Mark II Class Ferry, Exterior Seating Arrangements** is provided for reference.

1. Some disassembly may be required to prepare and powder coat the benches. The Contractor shall be responsible for all disassembly and reassembly. Reassembly shall be accomplished using new Contractor provided manufacturer's recommended fasteners, powdered coating to match. Benches are TURNBALL model VDS100**.**

B. Remove all existing coatings, prepare, and powder coat all surfaces, colors to match existing.

C. Coating shall be for exterior exposed locations.

D. Reinstall benches on Vessel using all new Contractor 316 stainless steel fasteners as shown on **WSF DWG A73-645-02**.

E. Contractor provided dielectric isolation material shall be placed between the benches and the Vessel structure.

57. POTABLE WATER TANKS INSPECTION AND PRESERVATION {MAINTENANCE}

A. There are two (2) potable water tanks. The tanks will be pumped to low suction prior to the arrival of the Vessel at the Contractor's facility, however the Contractor is responsible for disposing of whatever accumulation remains.

B. Pump out all residual water in both tanks and dispose of in accordance with appropriate environmental regulations.

NOTE:

The tanks will be pumped to low suction prior to the arrival of the Vessel at the Contractor's facility.

C. Provide lighting, ventilate, sanitize, clean and gas free the potable water tank and obtain a Marine Chemist certificate for "SAFE FOR WORKERS", and "SAFE FOR HOT WORK". Maintain the certificates during the course of the Work.

D. Plug all piping penetrations into the tank to prevent leakage of any liquid into the tanks.

1. The Contractor shall be responsible for all leakage into the tank.

E. Accomplish a high-pressure water wash, (minimum 3500 PSI) disinfect, pump out, and properly dispose of residual liquid.

F. Inspect the interior of the tanks for deteriorated fittings. Submit three (3) copies of a written report within twenty-four (24) hours of inspection to the WSF Inspector.

G. Grit blast all interior surfaces to a SSPC-SP 10, Near White Blast.

NOTE:

See product data sheets for all min/max over-coating intervals.

H. Apply one (1) full coat of **International Interline 925 White**, at a minimum of 14.0 mils (DFT), to prepared areas.

NOTE:

Stripe coat must be applied within twenty-four (24) hours.

I. Apply stripe coat of **International Interline 925 White**, to edges, weld seams, welds of attachments and appendages, cutouts, corners, butts, including inaccessible areas such as backside of piping, and framing. Stripe coat these areas after the previous full coat has dried. The stripe coat shall encompass all edges as well as at least a one inch (1") border outside each edge and weld.

J. Provide heated dehumidifiers/ventilation producing six (6) air exchanges per hour for fourteen (14) days minimum, with the air intake being close to the bottom of the tank.

K. Upon completion of the inspection and all Work in the tanks, close up using new Contractor furnished 316 stainless steel fasteners, washers, grommets and gaskets.

L. Prior to placing tanks in service, the entire potable water system, including the storage tanks, shall be cleaned, disinfected and flushed in strict accordance with the requirements of the USCG and WHO. It is recommended that the disinfecting procedures outlined in the WHO Guide to Ship Sanitation, Annex 1, be consulted as providing an acceptable method of disinfecting. Provide copies of test sample locations and laboratory results to the WSF Inspector and Vessel Staff Chief Engineer.

M. The entire Vessel's potable water system shall be flushed sufficiently after disinfecting that water drawn from the most remote tap or faucet is free from all color or taste of paint, preservative, or disinfectant. A signed "Certificate of Disinfection" shall be provided to the WSF Inspector prior to the system being placed in service and prior to the Contract Vessel departure.

58. OPEN, INSPECT, PREPARE AND PRESERVE SEWAGE TANKS {MAINTENANCE}

A. There are two (2), (10,000-gallon each), Sewage tanks, one (1) located in Pump Room No. 1, one (1) located in Pump Room No. 2. The tanks will be pumped to low suction prior to the arrival of the Vessel at the Contractor's facility; however, the Contractor is responsible for disposing of whatever effluent, sludge, or accumulation remains. The tanks will contain some amount of sludge and should be considered HAZARDOUS, as the sludge may contain harmful bacteria and emit poisonous and flammable gasses.

B. Prior to working on the Sewage tanks, ensure all critical machinery is well covered and protected, prior to the start of any Work in the space. Prior to washing, inspect the cover up to the satisfaction of the Vessel Staff Chief Engineer and the WSF Inspector. **IFB Vol. III, WSF DWG A44-105-01, Jumbo Mark II Class Ferry, Structural Unit 105,** is provided for guidance.

C. Open access cover and upon completion of affiliated Work close up using new fasteners, washers, grommets and gaskets.

NOTE:

The tank will contain some amount of sludge, and should be considered hazardous; the sludge may contain harmful bacteria and emit poisonous and flammable gasses.

D. Pump out all residual water, sludge or any liquid remaining, clean, ventilate, illuminate, disinfect, sanitize, blast, prep and paint the Sewage tanks in accordance with appropriate environmental regulations and **WSF 001**.

E. Inspect all restrooms, urinals and toilets with a WSF Inspector or Vessel Staff Chief Engineer to ensure that no waste is present. Close and secure restrooms.

F. Provide two (2) Sani-cans on deck and label for WSF Employees Use Only, and the required service until all affiliated Work is complete and the sanitary system is back in operation.

G. Provide hand wash stations for WSF Employees Use Only until all water systems are back in service.

H. Clean and gas free all spaces associated with the Work, as necessary, and obtain a Marine Chemist certificate for "SAFE FOR WORKERS", and "SAFE FOR HOT WORK". Maintain the certificate during the course of the Work.

I. Provide necessary lighting and ventilation to perform required Work in/on the Sewage tanks. Pipe connections and all openings shall be sealed to prevent contamination from blasting or other foreign material entering the existing system and water to leak in tanks. Where required, valves shall be removed and openings blanked to prevent contamination of system. Upon completion of painting and inspection, ensure all temporary blanks, plugs and/or seals are removed and all piping and valves are reinstalled in proper manner and no leakage. Contractor will be responsible for removal of any and all leakage, including sludge or liquids that accumulated in the tank.

J. Sewage tank shall be enclosed to prevent blasting or foreign materials associated with this Work from contaminating the surrounding compartment/s, and to prevent blasting or foreign materials associated with other Work from contaminating the Sewage system. Any spaces contaminated by Work in this Item shall be decontaminated at the Contractor's expense and will be completed to the satisfaction of the WSF Inspector and the Vessel Staff Chief Engineer.

K. Blast internal surfaces of the Sewage tank to a SSPC-SP 10, Near White Blast Cleaning.

L. Vacuum removal equipment shall be frequently employed to remove and prevent excessive residue build-up during blasting. Ensure that all dust, grit and other contaminants are removed prior to painting.

M. Apply one (1) full coat of International Interline 624 Buff, at a minimum of 6 mils (DFT), to prepared areas.

N. Apply stripe coat of International Interline 624 Grey, to edges, weld seams, welds of attachments and appendages, cutouts, corners, butts, including inaccessible areas such as backside of piping, and framing. Stripe coat these areas after the previous full coat has dried. The stripe coat shall encompass all edges as well as at least a one inch (1") border outside each edge and weld.

O. Apply one (1) full coat of International Interline 624 White, at a minimum of 6 mils (DFT), to prepared areas.

P. Apply stripe coat of International Interline 624 Grey, to edges, weld seams, welds of attachments and appendages, cutouts, corners, butts, including inaccessible areas such as backside of piping, and framing. Stripe coat these areas after the previous full coat has dried. The stripe coat shall encompass all edges as well as at least a one inch (1") border outside each edge and weld.

Q. Provide dehumidifiers/ventilation producing six (6) air exchanges per hour for seven (7) days minimum, with the air intake being close to the bottom of the tank.

R. Allow adequate coating system cure time prior to closing of the tank following Paint Manufacturer instructions.

S. Ensure that all valve and pipe connections are properly made up and that all plugs and debris are removed from the tank, and test for any leakage.

T. Conduct an inspection of the tank interior in the presence of the WSF Inspector and the Vessel Staff Chief Engineer prior to closing up.

U. Any leakage and all Work related to the leakage will be repaired at the Contractor's expense.

V. Upon completion of the inspection and all Work in the tanks, close up using new Contractor furnished fasteners, washers, grommets and gaskets.

W. Prior to the removal of protective machinery covering, clean the voids of any dust and debris to the satisfaction of the Vessel Staff Chief Engineer and the WSF Inspector. Wipe down all major equipment after removal of protective covering.

59. WEIGHT CONTROL

{SECURITY}

A. The Contractor shall document weight changes and centers of gravity throughout the execution of Work.

B. At the pre-arrival conference the Contractor shall prepare and submit to WSF for approval, a plan for monitoring weight and center information for all weights added, removed and relocated during this Vessel availability. This plan will address individuals, equipment and techniques to be used in the weight control process including the following points:

1. Certification of weighing facilities.
2. Where (location) the weighing will be accomplished.
3. If software is to be used, identify the software.
4. A sample data sheet showing date and time of weighing, the individual responsible for the activity, material identification, unit weight, quantity, center of gravity, and final disposition of the material (i.e. added, removed or relocated).

C. Data sheets generated by the approved process shall be submitted to WSF with progress invoices. Progress payments WILL NOT be made until all of the required weight control records have been reviewed by the WSF Representative.

60. RESCUE BOAT DAVIT EXCHANGE

A. Remove the existing No.1 and No. 2 End Rescue Boat Davits and install WSF furnished replacement davits using IFB Vol. III, **WSF DWG A76-016-01, Jumbo Mark II Class Ferry, Rescue Boats & Davit Arrangement** for guidance.

B. Provide the services of an authorized Schat-Harding Representative to supervise the rescue boat davits removal/replacement, connections, and start up and testing.

C. Conduct a 2,200-lb. Weight Test using **IFB Volume V, harding-watercraft, Handling Equipment For Rigid Inflatable Boat Davit Type SAC (H) 4000/3500,** with WSF and USCG Inspectors and the Vessel Staff Chief Engineer. Submit three (3) copies of a written report of findings to the WSF Project Engineer.

D. Perform an operational test of the davit through three (3) complete successful cycles in the presence of WSF and USCG Inspectors and the Vessel Staff Chief Engineer.

E. Prepare new and disturbed areas in way of this Work to an SSPC-SP 11, Power Tool Cleaning to bare steel. Apply one (1) coat of Intershield 300V Bronze, to a minimum of 6 mils (DFT). Apply one (1) coat of INTERNATIONAL Intershield 300V Aluminum, to a minimum of 6 mils (DFT) and one (1) topcoat of INTERNATIONAL Interthane 990, to obtain minimum 3 - 4 mils (DFT), to match existing color for the area.

61. VEHICLE DECK ROLLER DOOR RENEWAL

A. Renew Upper Vehicle deck McKeon® roller doors and door frames for doors D301, D302, D315 & D316 using **IFB Vol. II**, **WSF DWG A74-004-02, Jumbo Mark II Class Ferry, Door Schedule and Key Plan** and **IFB Volume V, Contract Guidance Manuals, Operations & Maintenance Manuals, Mark II Jumbo Ferry – Tacoma, Rolling Doors Instruction Manual,** as reference. Renew the roller door with McKeon® or equal roller door.

1. The local McKeon Door representative is :

   Zesbaugh Inc.
   6323 204th St SW.
   POB 1066
   Lynnwood, WA 98046
   Phone: (206)547-1900
   Fax: (206)547-0223
   Contact: Greg Hendricks
   GregH@Zesbaugh.com

B. Remove and reinstall all interferences necessary to complete this Item including but not limited to security access equipment.

C. Remove doors D301, D302, D315 and D316 in their entirety, including the frame as **Category "D".**

D. The new doors shall be Coast Guard approved class C doors.

E. Upon completion of removals, conduct joint steel survey with the WSF Inspector.

1**.** **NOTE**:

For estimating purposes, assume three square feet (3 sq. ft.) of deck steel renewal underneath each of the existing thresholds for a total of twelve square feet (12 sq. ft.) of deck steel renewal. The deck steel renewal will be adjusted up or down based on the vehicle deck steel Unit Price.

F. Provide the services of Zesbaugh Inc. (the local McKeon® authorized representatives) to install the new doors.

1. Provide the service of Zesbaugh Inc., the door manufacturer's Technical Representative, to conduct final set up and adjustment to the satisfaction of the WSF and USCG Inspectors.

G. Trim the new doors to the existing bulkheads and overhead to provide a finished appearance. All metal pieces shall be powder coated with the color to match surrounding material.

H. Set up the door closing devices and latches and prove proper operation of the doors to the satisfaction of the U.S. Coast Guard and WSF Inspectors.

I. Prepare new and disturbed areas in way of this Work to an SSPC-SP 11, Power Tool Cleaning to bare steel. Apply one (1) coat of Intershield 300V Bronze, to a minimum of 6 mils (DFT). Apply one (1) coat of INTERNATIONAL Intershield 300V Aluminum, to a minimum of 6 mils (DFT) and one (1) topcoat of INTERNATIONAL Interthane 990, to obtain minimum 3 - 4 mils (DFT), to match existing color for the area.

J. All disturbed non-skid areas (minimum of one (1) square foot each) shall be prepared to an SSPC-SP 11 Power Tool Cleaning to bare steel. Apply one (1) anti-corrosive coat, Sherwin-Williams Corothane 1 Galva-Pac Zinc, Gray, to obtain 3 to 4 mils (DFT). Apply one (1) primer coat, American Safety MS 7CZLT, Gray, to obtain 4 to 5 mils (DFT). Apply one (1) NON-SKID coat, American Safety AS-250, to match surrounding.

62. INTERNAL COMMUNICATIONS BATTERY RENEWAL

A. Renew the Hold Internal Communications Systems Batteries located in the Engineers Store Room No. 1 with WSF supplied batteries using **IFB Vol. III**, **WSF DWG A63-090-10, Jumbo Mark II Class Ferry, Electrical Equipment Layout, Hold Deck Fr 30-100 End No. 1** for guidance.

1. Remove and dispose of the existing Hold IC System batteries in accordance with all applicable local, State and Federal rules, laws and regulations.

2. Install new WSF supplied batteries in the existing IC system location.

3. Reconnect the batteries utilizing existing battery terminal brackets and install new battery cables using **IFB Volume V, Saft Nife Operating and Service Instructions, SLR/SLRF Series Battery Charger Single Phase Input Manual,** for guidance.

B. Test all of the new battery installations in the presence of the WSF Inspector and Vessel Staff Chief Engineer in accordance with **Saft Nife Operating and Service Instructions**.

C. Adjust the existing battery chargers in accordance with WSF provided settings, **Saft Nife Operating and Service Instructions**.

D. Upon completion, ensure that the proper initial charging procedures are followed in accordance with the manufacturer's directions. Set up and initiate the primary first charging of the batteries, working in conjunction with the Vessel Staff Chief Engineer and WSF Inspectors.

E. In areas disturbed by this Work, remove and restore paint as necessary. Prepare surfaces to an SSPC-SP 3, Power Tool Cleaning, and apply two (2) coats of INTERNATIONAL Intershield 300, to a minimum of 5 mils (DFT) each coat for a total of 10 mils (DFT). The back sides, corners and sharp edges of all angles, rat holes, weld seams, scallops, and beams shall be hand-striped using Intershield 300. Topcoat areas disturbed with International 990 to a minimum of 2 mils (DFT) to match surrounding areas.

63. RESCUE BOAT / ANCHOR ROOM SCREEN MODIFICATIONS

A. Remove the existing screens on the rescue boat and anchor room enclosures and renew with 316 stainless steel screens using **IFB Vol. III, WSF DWG A75-003-01, Jumbo Mark II Class Ferry, Expanded Metal Bulkheads, Details** for guidance.

B. Retain existing expanded frame structure to bolt new stainless steel expanded frames to. Template new expanded metal frames from existing conditions.

C. Fabricate new expanded metal bulkheads using **WSF DWG A75-003-01**. Use 316 stainless steel angles and shapes and use ½" No. 13, 316 stainless flattened expanded metal in lieu of the carbon steel listed on **WSF DWG A75-003-01.**

D. Install approximately 1½" wide x ¼" thick 316 stainless steel tabs spaced around the screens perimeters at approximately twenty-four (24") intervals to attach the new screens to.

E. Renew all of the screens at the following locations:

1. All of the No. 1 and No. 2 End rescue boat enclosure screens.
2. All of the anchor room enclosure screens.
3. All of the Lube Oil and Fuel Oil Filling Station Screens.

F. Install new screens using new 3/8" diameter 316 stainless steel fasteners, consisting of hex-head bolts, two (2) fender washers each bolt, and nylok nuts.

G. In areas disturbed by this Work, remove and restore paint as necessary. Prepare surfaces to an SSPC-SP 3, Power Tool Cleaning, and apply two (2) coats of INTERNATIONAL Intershield 300, to a minimum of 5 mils (DFT) each coat for a total of 10 mils (DFT). The back sides, corners and sharp edges of all angles, rat holes, weld seams, scallops, and beams shall be hand-striped using Intershield 300. Topcoat areas disturbed with International 990 to a minimum of 2 mils (DFT) to match surrounding areas.

64. VEHICLE DECK HVAC SCREEN MODIFICATIONS AND RENEWALS

A. Renew, modify, and repair HVAC screens located throughout the vehicle decks using **IFB Vol. III, WSF DWG A74-012-02, Jumbo Mark II Class Ferry, Heating, Ventilation & Air Conditioning System Diagram, sheets 11, 12, 13,** and **15** for location guidance. The following drawings are to be used for guidance:

1. **A55-254-04 Assembly 254 EV02.** Paragraph E1
2. **A55-254-04 Assembly 254 NV02.** Paragraph E2
3. **A55-258-04 Assembly 258 NV01.** Paragraph E3
4. **A55-257-04 Assembly 257 EV08.** Paragraph E4
5. **A55-257-04 Assembly 257 NV01.** Paragraph E5
6. **A55-252-04 Assembly 252 NV04.** Paragraph E6
7. **A55-252-04 Assembly 252 NV04**. Paragraph E7
8. **A55-252-04 Assembly 252 NV01.** Paragraph E8
9. **Vacant**
10. **A55-253-04 Assembly 253 NV01.** Paragraph E10
11. **A55-257-04 Assembly 257 NV06.** Paragraph E11
12. **A55-257-04 Assembly 257 NV04.** Paragraph E12
13. **A55-259-04 Assembly 259 NV01.** Paragraph E13
14. **A55-259-04 Assembly 259 NV04.** Paragraph E14
15. **A55-254-04 Assembly 254 SV01.** Paragraph F1
16. **A55-254-04 Assembly 254 SV05.** Paragraph F2
17. **A55-258-04 Assembly 258 SV01.** Paragraph F3
18. **A55-258-04 Assembly 258 EV04.** Paragraph F4
19. **A55-255-04 Assembly 255 EV04.** Paragraph F5
20. **A55-255-04 Assembly 255 SV01.** Paragraph F6
21. **A55-259-04 Assembly 259 SV05.** Paragraph F7
22. **A55-259-04 Assembly 259 SV01.** Paragraph F8
23. **A55-262-04 Assembly 262 EV06.** Paragraph G1
24. **A55-262-04 Assembly 262 NV01.** Paragraph G2
25. **A55-262-04 Assembly 262 EV07.** Paragraph G3
26. **A55-262-04 Assembly 262 SV01.** Paragraph G4
27. **A55-266-04 Assembly 266 EV01.** Paragraph G5
28. **A55-263-04 Assembly 263 EV01.** Paragraph G6
29. **A55-267-04 Assembly 267 EV04.** Paragraph G7
30. **A55-267-04 Assembly 267 NV03.** Paragraph G8
31. **A55-250-04 Assembly 250 NV02.** Paragraph G9
32. **A55-258-04 Assembly 258 NV04**. Paragraph G10

B. Fabricate the new screens using existing screens as templates. Install all new screens using 316 stainless steel fasteners.

C. Renew ventilation duct screens at the following approximate locations on the vehicle decks. The following sizes are approximate. Template new screen fabrication from existing screens using 316SS materials.

1. 7" x 5" VT25002 No. 2 End Fr 20 Port side center vehicle tunnel.
2. 9" x 5" VT25304 No. 1 End Fr 20 Port side outboard lower vehicle deck.
3. 7" x 13" VT25303 No. 1 End Fr 22 Port side outboard lower vehicle deck.
4. 6" Diameter VT25604 No. 2 End Fr 18 Stbd. side center vehicle tunnel.
5. 8" x 11" VT25603 No. 2 End Fr 17 Stbd. side center vehicle tunnel.
6. 6" x 5" 257SV01 No. 2 End Fr 3 Port side outboard upper vehicle deck.
7. 8" x 9" VT25602 No. 2 End Fr 20 Stbd. side center upper vehicle tunnel.
8. 6" x 9" VT25601 No. 2 End Fr 15 Stbd. side center upper vehicle tunnel.
9. Coat the duct where the louver attaches using **WSF 001** and the coating system for the applicable Zone location in this specification. Do not coat the new 316 stainless steel duct screens.

D. Renew Vent Closure Assemblies and prepare the recessed vent closures in the following approximate locations. Prepare all of the recessed enclosure duct areas to an SSPC-SP 11, Power Tool Cleaning to bare metal, using a vacuum attached needle gun, using care not to contaminate the interior of the louvers with debris.

E. Remove the existing closure plates, hinges and closure pin retaining plates and renew with 316 stainless steel materials. Do not coat the new 316 stainless steel covers, hinges and closure pin retaining plates. Renew all lanyards and quick release locking pins using 316 stainless steel materials also.

1. 9" x 15" RC **254EV02** No. 2 End Fr 38 Port side center vehicle tunnel.
2. 16" x 10" RC **254NV02** No. 2 End Fr 33 Port side outboard vehicle tunnel.
3. 15" x 9" RC **258NV01** No. 2 End Fr 31 Stbd. side center vehicle tunnel.
4. 8" x 16" RC **257EV08** No. 1 End Fr 12 Stbd. side outboard vehicle deck.
5. 20" x 12" RC **257NV01** No. 1 End Fr 16 Stbd. side center vehicle tunnel.
6. 20" x 12" RC **257NV07** No. 1 End Fr 28 Stbd. side center vehicle tunnel.
7. 20" x 12" RC **252NV04** No. 2 End Fr 17 Port side outboard upper vehicle deck.
8. 6" x 5" RC **252NV01** No. 2 End Fr 21 Port side outboard upper vehicle deck.
9. Vacant.
10. 24" x 14" RC **253NV01** No. 1 End Fr 12 Port side outboard upper vehicle deck.
11. 20" x 12" RC **257NV06** No. 1 End Fr 12 Stbd. side outboard upper vehicle deck.
12. 20" x 12" RC **257NV04** No. 1 End Fr 17 Stbd. side outboard upper vehicle deck.
13. 16" x 9" RC **259NV01** No. 1 End Fr 34 Stbd. side center vehicle tunnel.
14. 16" x 9" RC **259NV04** No. 1 End Fr 36 Stbd. side center vehicle tunnel.
15. Test all renewed closure plates and locking pins to the satisfaction of the WSF Inspectors and Vessel Staff Chief Engineer.
16. Coat the steel portions of the vents using **WSF 001** and the coating system for the applicable Zone location in these Technical Specifications.

F. Remove hinged vent louver assemblies at the following approximate locations including the existing hinge assemblies. Prepare the following vent louvers to an SSPC-SP 6 Commercial Blast and have the louvers hot dip galvanized. Renew the hinges using 316SS hinges using the existing hinges and locations for templates.

1. 30" x 31" **254SV01** No. 2 End Frame 38 Port outboard vehicle deck.
2. 4'4" x 3'4" **254SV05** No. 2 End Frame 40 Port centerline vehicle deck.
3. 4'4" x 3'4" **258SV01** No. 2 End Frame 40 Stbd. centerline vehicle deck.
4. 30 x 31 258EV04 No. 2 End Frame 38 Stbd. outboard vehicle deck.
5. 30 x 31 255EV04 No. 1 End Fr 38 Port outboard vehicle deck.
6. 4'4" x 3'4" **255SV01** No. 1 End Fr 40 Port centerline vehicle deck.
7. 4'4" x 3'4" **259SV05** No. 1 End Fr 40 Stbd. centerline vehicle deck.
8. 30 x 31 259SV01 No. 1 End Fr 38 Stbd. outboard vehicle deck.
9. Coat the louvers using **WSF 001** and the coating system for the applicable Zone location in these Technical Specifications.

G. Prepare non-removable louvers in the following approximate locations. Prepare all of the louvers to an SSPC-SP 11, Power Tool Cleaning to bare metal, using a vacuum attached needle gun, using care not to contaminate the interior of the louvers with debris. Coat the louvers using **WSF 001** and the coating system for the applicable Zone location in these Technical Specifications.

1. 8" Diameter **262EV06** No. 2 End Fr 69 Port centerline vehicle deck.
2. 4" Diameter **262NV01** No. 2 End Fr 65 Port centerline vehicle deck.
3. 39" x 39" **262EV07** No. 2 End Fr 62 Port centerline vehicle deck.
4. 16" x 12" **262SV01** No. 2 End Fr 51 Port centerline vehicle deck.
5. 39" x 39" **266EV01** No. 2 End Fr 62 Stbd. centerline vehicle deck.
6. 39" x 39" **263EV01** No. 1 End Fr 62 Port centerline vehicle deck.
7. 39" x 39" 267EV04 No. 1 End Fr 62 Stbd. lower vehicle deck.
8. 5" Diameter **267NV03** No. 1 End Fr 54 Stbd. lower vehicle deck.
9. 20" x 60" **250NV02** No. 2 End Fr 15 Port side outboard upper vehicle deck.
10. 4" Diameter **258NV04** No. 2 End Fr 32 Stbd. centerline vehicle deck.
11. Coat the louvers using **WSF 001** and the coating system for the applicable Zone location in these Technical Specifications.

65. NO. 1 AND NO. 2 ENDS LIFEJACKET DOOR MODIFICATIONS AND RENEWALS

A. Renew and modify the Life preserver Stowage locker doors using **IFB Vol. III**, **WSF DWG A76-016-06, Jumbo Mark II Class Ferry, Life Preserver Stowage, Deck 3**, as guidance.

B. Remove and document the life jackets located on the vehicle decks. Submit a count and location of all lifejackets. Store the lifejackets in a warm dry location.

C. Renew the existing vertical access doors using **elevation 5-A** for guidance. Renew pieces 14 and 15 with 316 stainless steel hinges, hasps and staples. Add a one inch (1") wide x ¼" thick flat bar strong-back along the inside perimeter of the door edges, approximately two inches (2") inside of the doors to keep the doors straight.

D. Renew the bottom drop gates, latching mechanisms, and associated parts detailed on page 4 of 7 **WSF DWG A76-016-06** of using 316 stainless steel parts in lieu of the A36 carbon steel listed on **WSF DWG A76-016-06, page 7**. Install the new drop gates using 316 stainless steel fasteners.

E. Test the new drop gates in the presence of the WSF Inspector, Vessel Staff Chief Engineer, and the USCG Inspector through three (3) complete successful test drops using 4 - 6 temporary bags set to simulate the bulk and weight of the stored lifejackets.

F. Install new gates after the coatings have been renewed on the vehicle decks. Touch up any disturbed coatings in accordance with the applicable Zone location.

66. RENEW PILOT HOUSE / CREW'S QUARTERS CARPETING AND WALK OFF MATS

A. Renew the carpeting in the pilot house and crew's quarters and install walk off mats in the pilot houses using **IFB Vol. II DWGS, WSF DWG 8111W-139-06-01, Jumbo Mark II Class Ferries, M/V Tacoma, Deck Covering Arrangements & Schedule** and **WSF DWG 8110-735-006-01, Jumbo Mark II Class, M/V Tacoma, Pilot House Walk-Off Mat Installation** for guidance.

B. Remove and reinstall all interferences to complete this Item. This may include chart tables, lockers and other equipment.

C. Remove and dispose of all the existing carpet and cove base in the pilot houses and crew's quarters. Remove the stair treads on the stairways from the crew quarters to the pilot houses.

D. Remove all adhesive from the underlayment.

E. Repair all underlayment damaged during the carpet removal.

F. Install new underlayment in all areas where existing underlayment was removed. The new underlayment shall be at the same height as the existing. The underlayment is to be asbestos free, meet the existing fire boundary rating, and USCG approved. The underlayment system shall be Poly-Spec 7K or equal as approved by the WSF Project Engineer.

NOTE:

For bidding purposes assume fifty (50) square feet of deteriorated underlayment will require removal and SSPC-SP 11 preparation and coating. The Contract Price will be adjusted upwards or downwards to reflect any difference in area of failed coating using the underlayment Unit Price for this Item.

1. Prepare the stairway risers and runs from the crew quarters to the pilot houses to an SSPC-SP 3, Power Tool Cleaning. Apply one (1) coat of Intershield 300V Bronze, to a minimum of 6 mils (DFT). Apply one (1) coat of INTERNATIONAL Intershield 300V Aluminum, to a minimum of 6 mils (DFT) and one (1) topcoat of INTERNATIONAL Interthane 990, to obtain minimum 3 - 4 mils (DFT), to match existing color for the area.

G. Install new carpet and cove base in the pilot houses and crew's quarters using **WSF DWG 8111W-139-06-01.** Match the new carpet to the existing carpet as close as possible. Provide carpet/cove-base samples to the Vessel Staff Master at the arrival conference for approval.

H. Install walk off mats at the pilot house doors using **WSF DWG 8110-735-006-01** for reference. The mats shall be Bonar Floors Inc, Coral Brush - Graphite 5901. Provide one (1) spare set of mats.

I. Install underlayment and structural fire protection so that the top of walk off mat and transition strip is flush with the floor carpet. Allow each coat to cure in accordance with the manufacturers recommendations. Coat the underlayment with a waterproof epoxy sealer prior to installing the walk off mats. Order the walk off mats to lay with the ribs running perpendicular to the walking direction.

J. Install a transition strip with removable flattop and countersunk fasteners over the transition between deck and mat around the entire perimeter of the walk off mat. Ensure that the transition strip matches the door threshold and is flush with the carpet, as shown in **detail 8-B** of **WSF DWG 8110-735-006-01**. DO NOT install the walk off mat underneath vinyl wall base.

K. Upon completion of carpet installation and stairway coatings, install new "Wooster Products" stair treads from the crew quarters to the pilot houses, Manufacturer Model Number Type 500 Black with first two (2) ribs Safety Yellow. Install with No. 10, 316 stainless steel tapped counter sunk machine screws.

L. At completion of topside Work, have the carpets in the crew's quarters and pilot houses professionally cleaned. The Contractor shall present the cleaned areas to the WSF Inspector and Vessel Staff Master for approval of cleanliness.

(END)